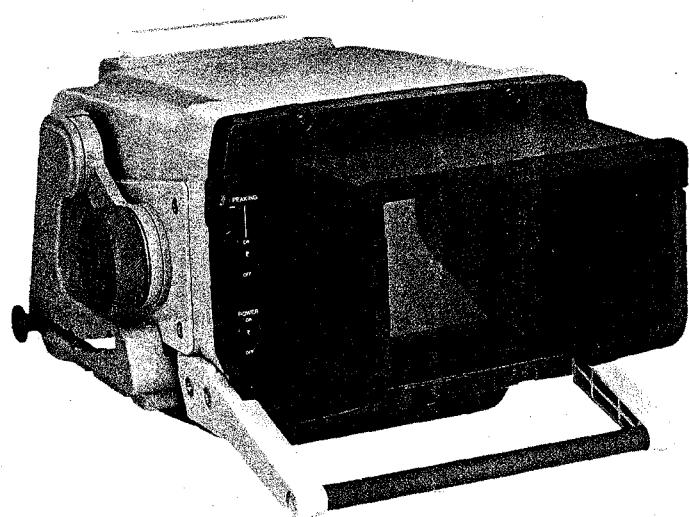


SONY

ELECTRONIC VIEWFINDER

BVF-77
BVF-77CE



OPERATION AND MAINTENANCE MANUAL

1st Edition (Revised 3)

Serial No. 10001 and Higher (UC)

Serial No. 30001 and Higher (J)

Serial No. 40001 and Higher (EK)

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß der elektronische Sucher BVF-77CE in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funkentstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Corporation

Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

SAFETY RELATED COMPONENT WARNING

Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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第1章 取り扱い操作

1-1. 特長

本機はソニーのスタジオ用カラーカメラに取り付けて使用する7インチ白黒ビューファインダーです。

省エネルギー設計

入力電圧の許容範囲が広く(10.5~17V)、しかも低消費電力(23W)です。

高解像度

高性能ブラウン管を採用し、水平解像度800本以上という高解像度を達成しています。

安定した画像

高圧安定回路により、画面の明るさに関係なく、ひずみの少ない安定した画像が得られます。

連続可変ピーリング補正

連続可変ピーリング補正回路により、シャープな画像が得られ、カメラのピント合わせが容易です。

タリーランプ

タリー信号によって点灯する2系統のタリーランプを備えています。

優れた操作性

本機は、高さを3段階に設定できチルティング角度は、最大上方向に60°、下方向に40°まで変えることができます。

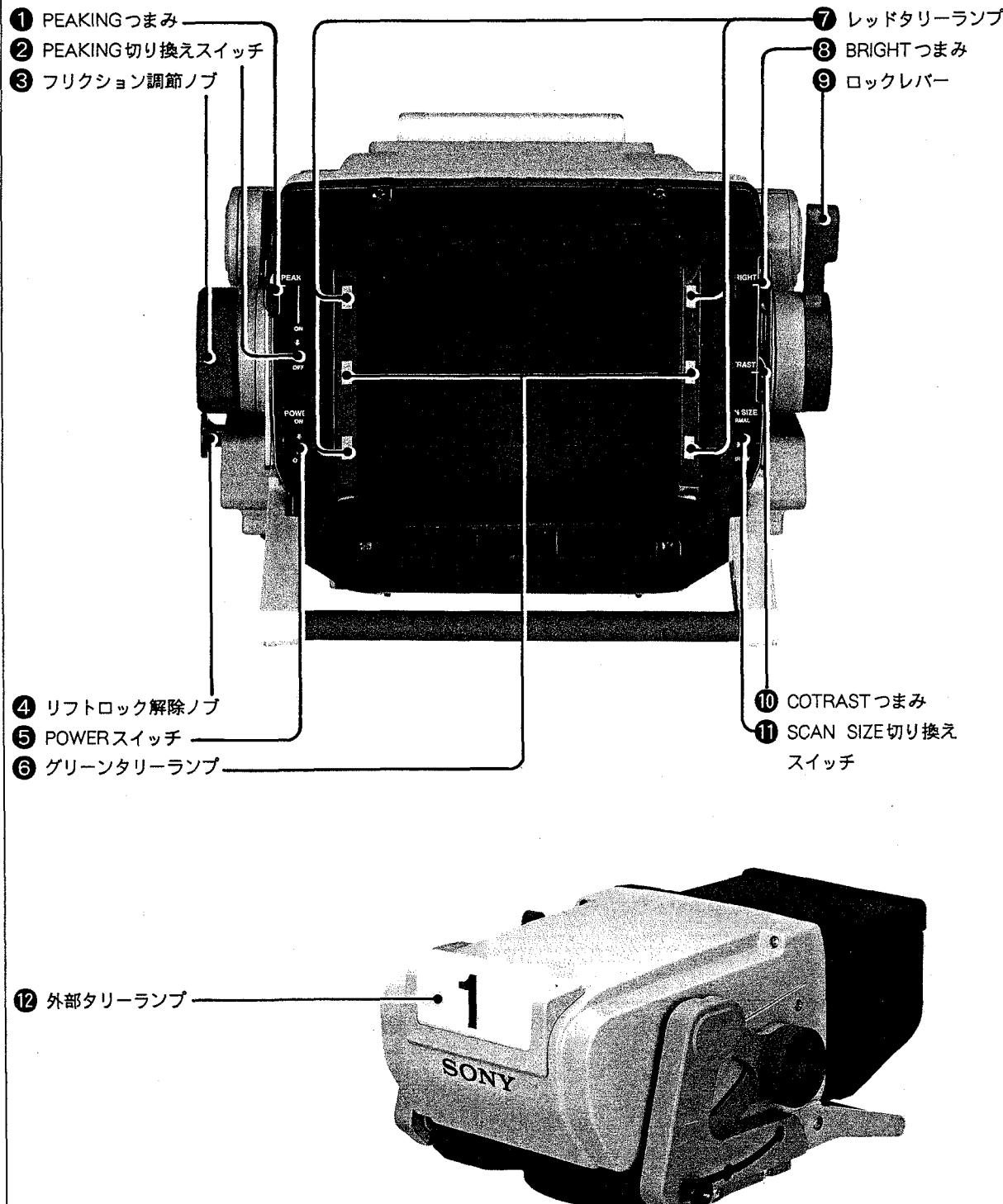
また、パンニング角度は左右両方向に90°まで変えることができます。

このときのカメラのバランス移動は最小限に抑えられています。

防滴構造

多少の雨が降っても安心ですから、戸外での撮影にも適しています。

1-2. 各部の名称と働き



① PEAKINGつまみ*1

PEAKING切り換えスイッチがONのとき、画像の輪郭を補正します。右へ回すと補正量が多くなります。調整可能範囲は、0から15dB以上です。

② PEAKING切り換えスイッチ

ONにするとPEAKINGつまみで補正できるようになります。OFFにすると補正量は0の状態になり、PEAKINGつまみが動かなくなります。

③ フリクション調節ノブ

ビューファインダーのチルト操作のフリクションを希望の度合に調節します。

④ リフトロック解除ノブ

ビューファインダーを標準位置（工場出荷時の位置）または最大限および中間まで引き上げた位置（角度調節可能な位置）でのロック状態を解除します。
このノブを引いて、ビューファインダーの高さを設定してください。

⑤ POWERスイッチ

スイッチをOFF側にするとビューファインダーの電源が切れます。通常はON側にしてください。

⑥ グリーンタリーランプ*2

カメラにグリーンタリー信号が供給されると点灯します。

⑦ レッドタリーランプ*2

カメラにレッドタリー信号が供給されると点灯します。

⑧ BRIGHTつまみ*1

画面の明るさ（輝度）を調整します。

⑨ ロックレバー

ビューファインダーを希望の角度に固定する際のレバーです。

レバーをレンズ側に倒すとビューファインダーは固定され、手前に倒すと、フリクション調整ノブ③で調整されたフリクションに戻ります。

⑩ CONTRASTつまみ*1

画面のコントラストを調整します。

⑪ SCAN SIZE切り替えスイッチ

スイッチをNARROW側（下側）にすると画面サイズが通常時の80%に縮小されます。

⑫ 外部タリーランプ

レッドタリーランプと同様に働きます。点灯させたくない場合は、カメラ側のUP TALLYスイッチをOFFにします。

- 外部タリーランプの光量調整については、カメラのマニュアルをご覧ください。
- 0から9までのナンバープレート（付属）を取り付けて、カメラの番号を表示できます。

*1：これらのつまみはカメラ映像出力には影響しません。

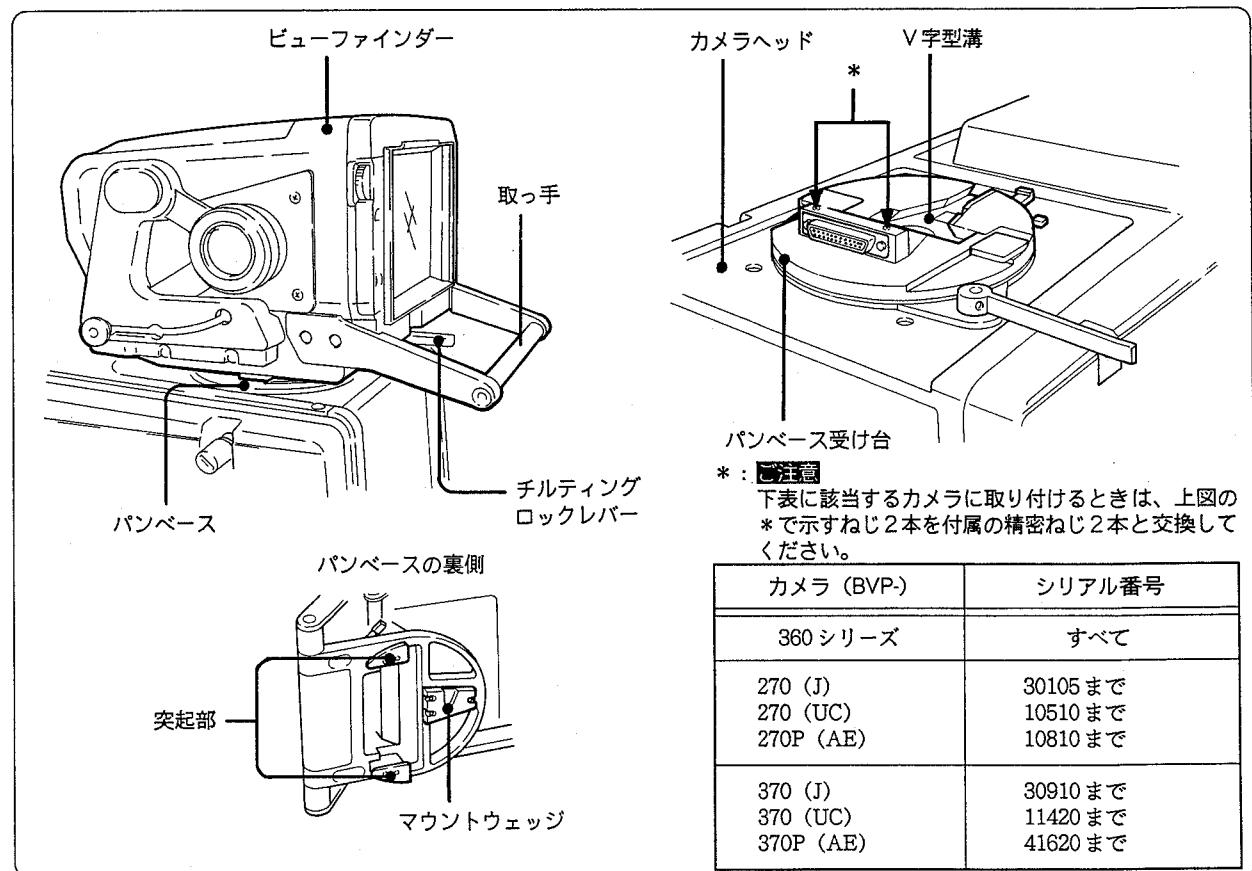
*2：これらランプの明るさは、内部ボリュームで調整できます。詳しくは、第5章をご覧ください。

1-3. 取り付けかた

1-3-1. ビューファインダーの取り付け

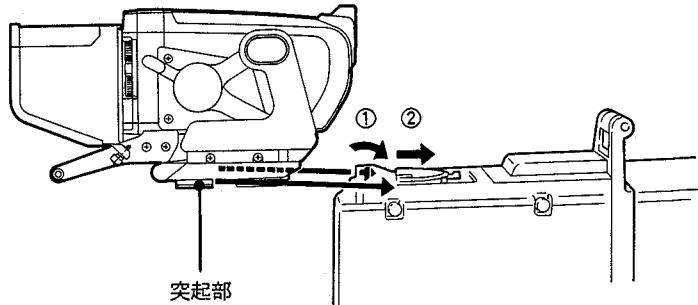
取り付ける前に下図のご注意をご覧ください。

ビューファインダー取り付け機構

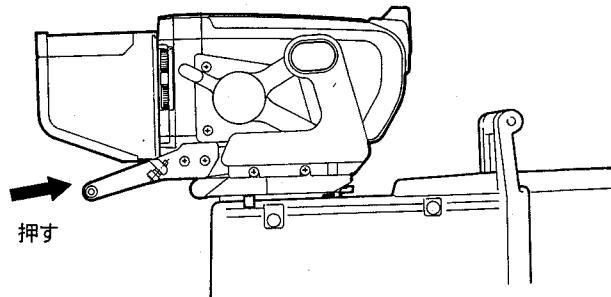


取り付けかた

- 1 ビューファインダーのパンベース裏側にあるマウントウェッジが、本機のパンベース受け台のV字型溝の中に入るように、また、パンベース裏側の突起部が下図に示す位置にくるように、ビューファインダーをパンベース受け台に載せます。

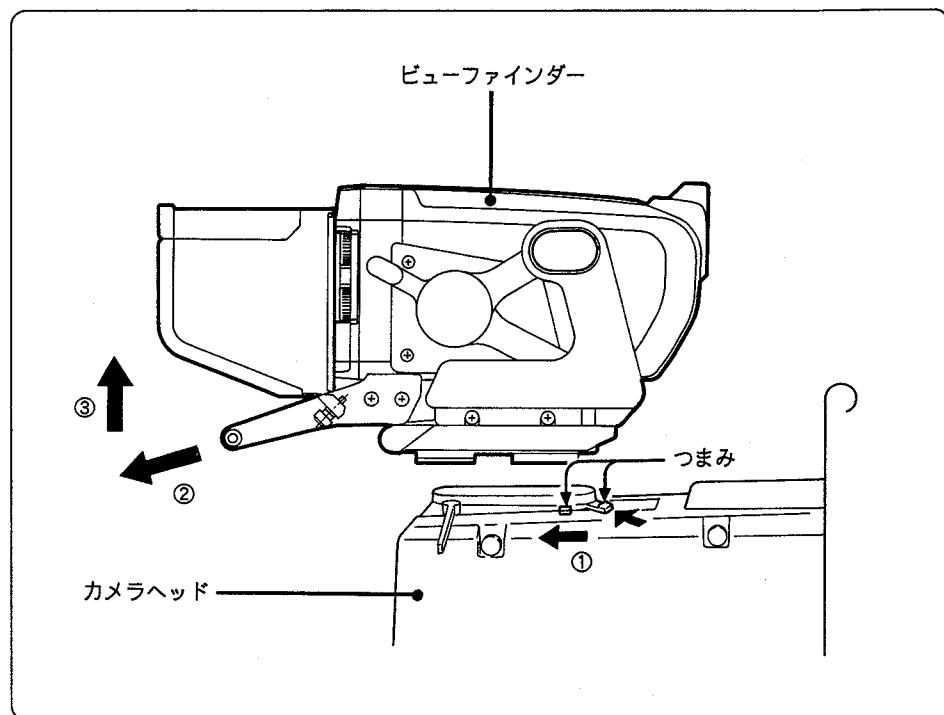


- 2 取っ手を押して、ビューファインダーをパンベース受け台にしっかりと差込みます。



取り外しかた

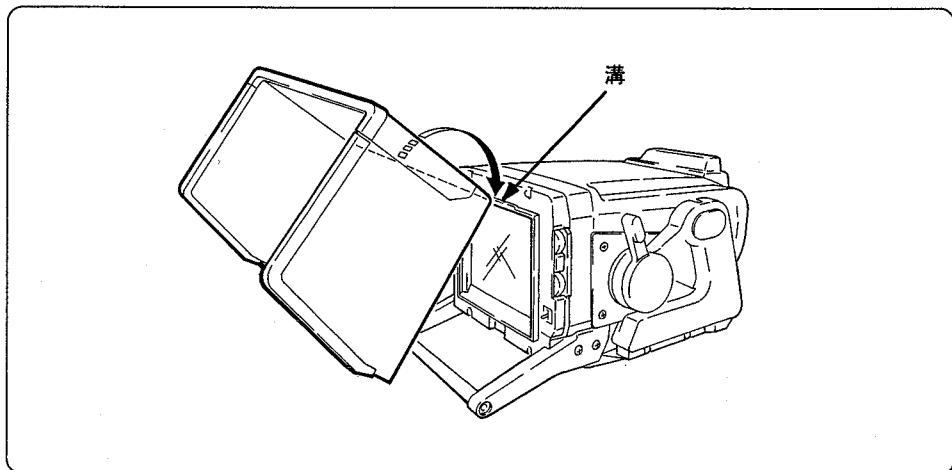
下図のように、2つのつまみを矢印①の方向に同時に押して、取っ手を手前に引き（②）、持ち上げて（③）取り外します。



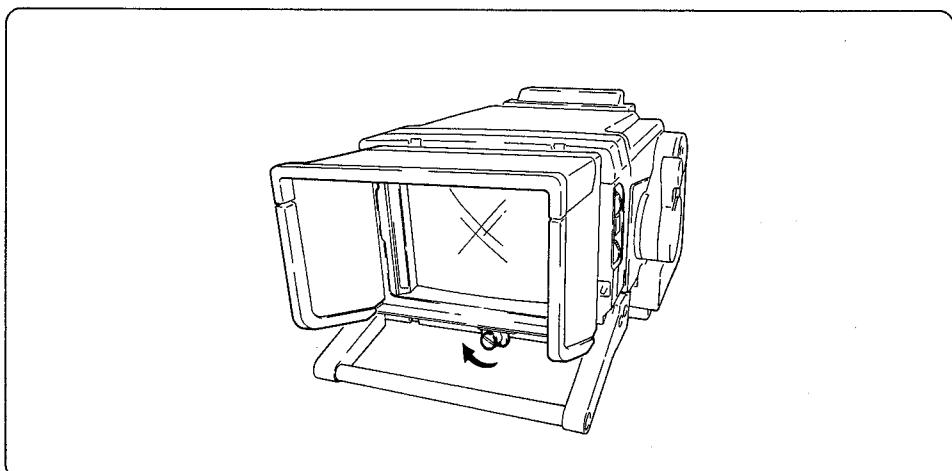
1-3-2. 屋内フード（付属）、屋外フードVFH-770（別売り）の取り付けかた

屋外フードVFH-770（別売り）の取り付けかたは、屋内フード（付属）と同じです。ここでは、「屋内フード（付属）の取り付けかた」として説明します。

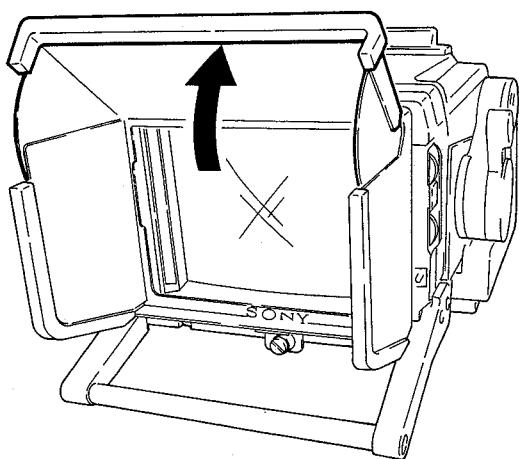
1 溝に引っかけて、取り付ける。



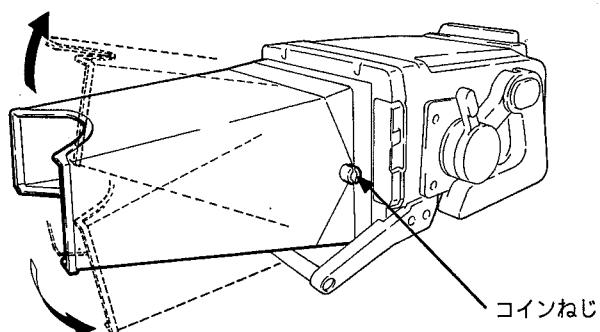
2 ねじを回して、固定する。



屋内フード



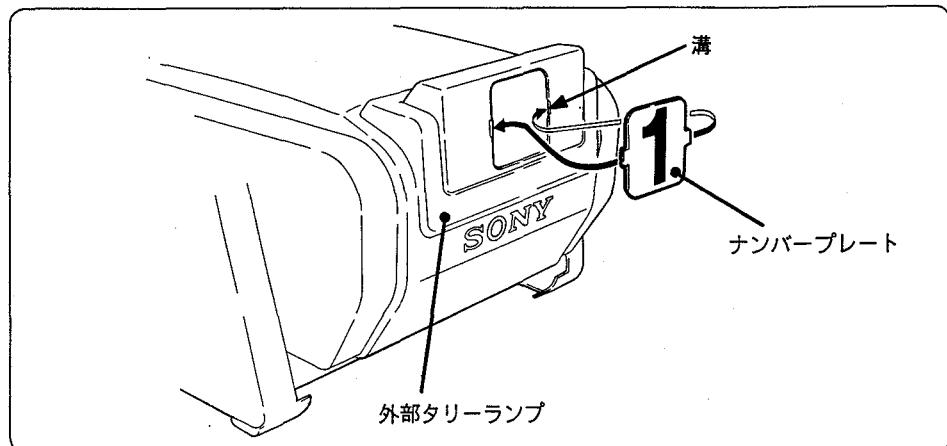
屋外フードVFH-770



- フードは上下30°ずつ向きを変える事ができます。
 - コインねじを右に回すとフードのフリクションが強くなります。
左へ回すと緩みます。
- お好みのフリクションに設定してご使用ください。

1-3-3. ナンバープレート（付属）の取り付けかた

ナンバープレートの左右のつめをアップタリーランプの溝に差し込みます。

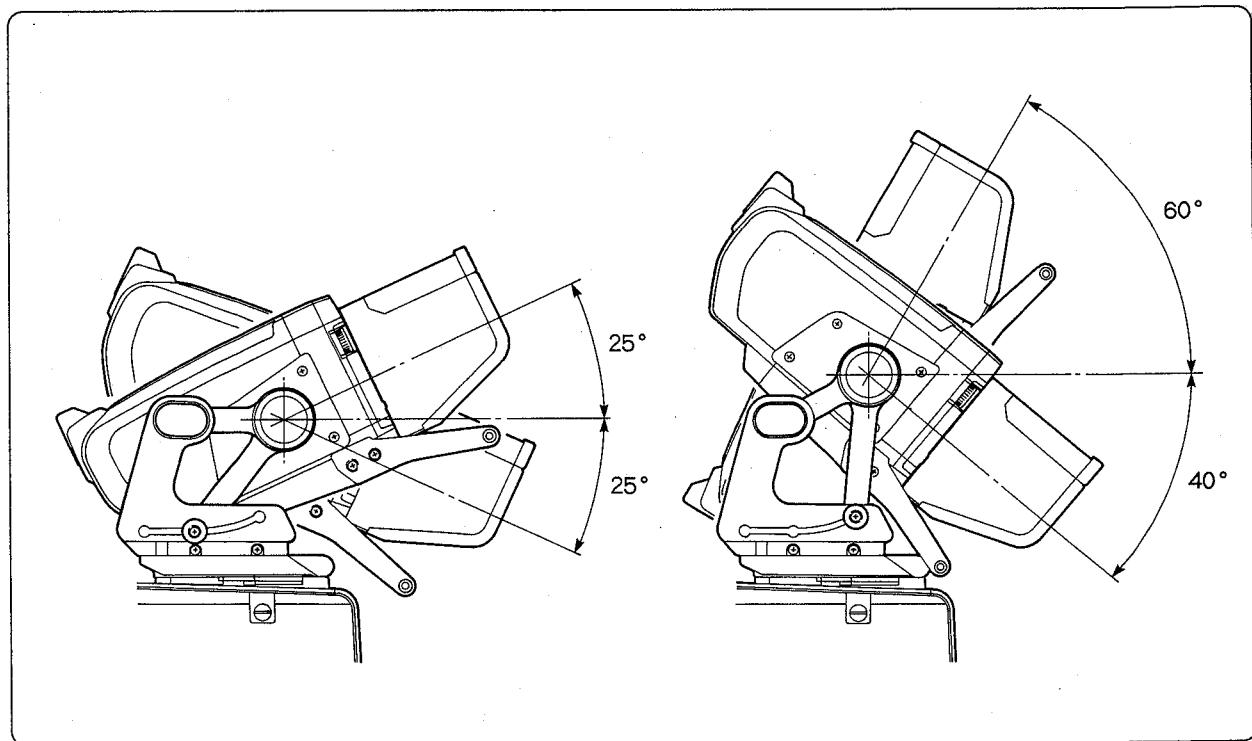


1-4. 使いかた

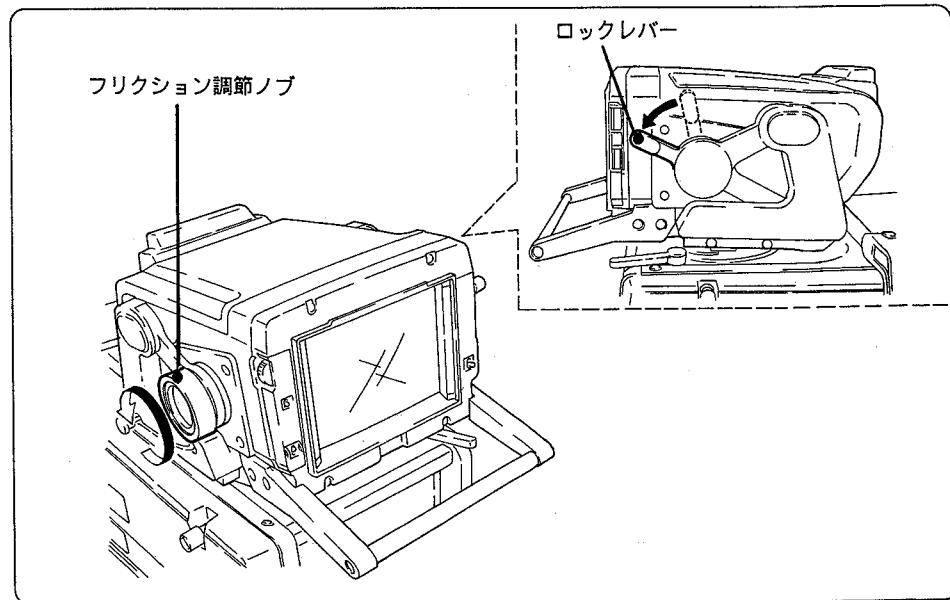
1-4-1. ビューファインダーの角度調整

ビューファインダーの画面が見やすいように、高さや向きを調整します。

上下方向の調整

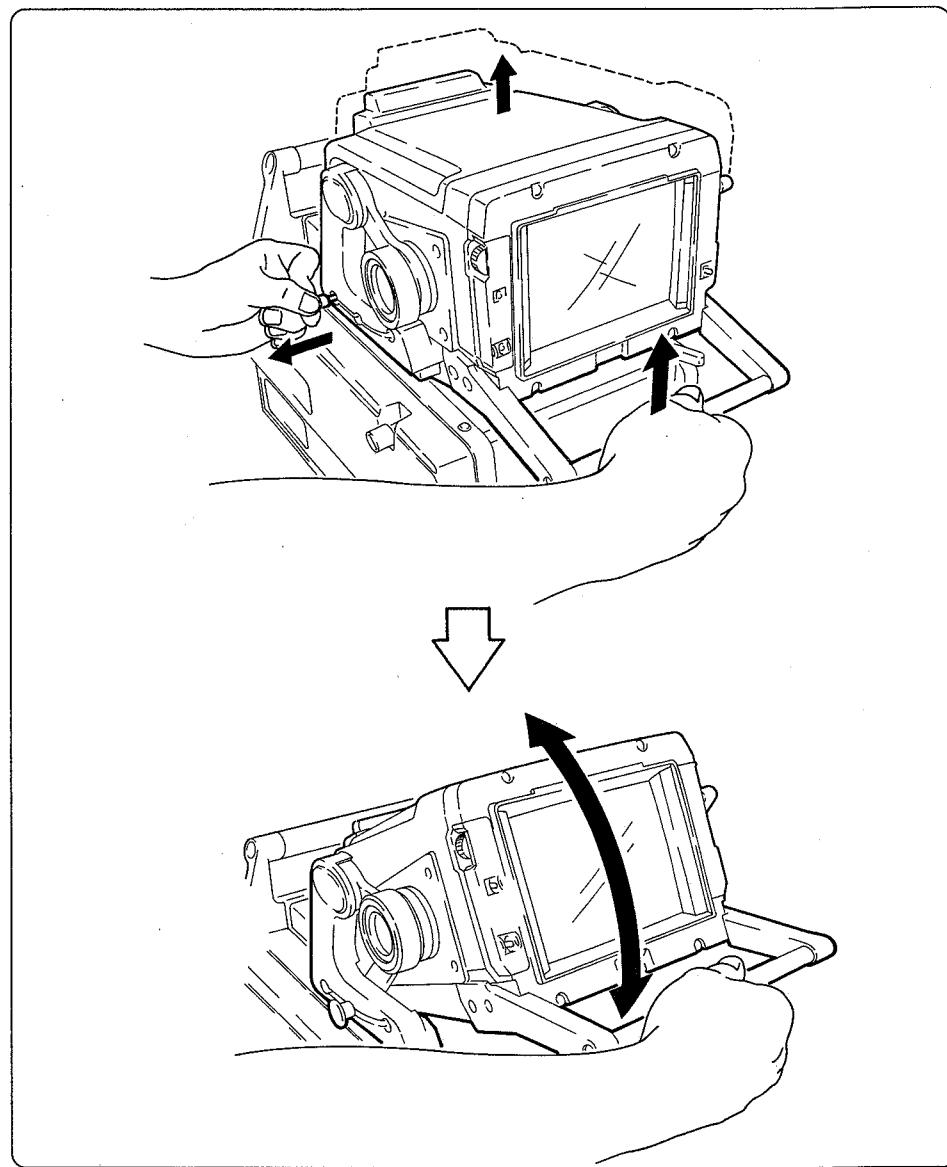


1 ロックレバーを手前に倒して、フリクション調節ノブを緩めます。



2 リフトロック解除ノブを引き、ビューファインダーを最大限または中間の高さまで引き上げます。

このとき、リフトロック解除ノブのみをもって引き上げると、高さ設定が正常にロックされないときがありますので、必ず把手を持って引き上げて下さい。



3 フリクション調節ノブを回して、好みのフリクションに調整します。

カメラを移動するときのご注意

ビューファインダーを標準位置まで引き下げ、ロックレバーをレンズ側に倒してください。
(このとき、リフトロック解除ノブが完全にロック状態になっていることを確認してください。)

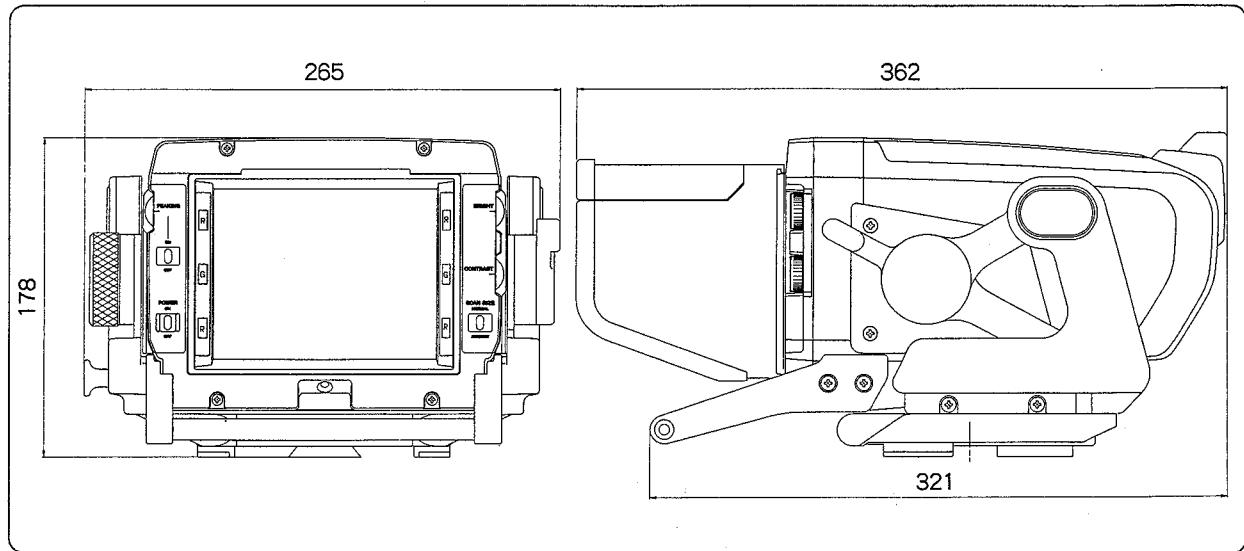
左右方向の調整

カメラ（BVP-370, 270, 360）の取り扱い説明書の1-5.をご覧ください。

1-5. 仕様

| | |
|------------|--|
| ブラウン管 | 90度偏向7型モノクローム 160 × 131mm (幅×高さ) |
| 有効画面 | 120 × 90mm |
| 輝度 | 500 NIT |
| 解像度 | 中心部800本 周辺部600本 |
| 画面ひずみ | 1.0 %以下 |
| 高圧レギュレーション | ± 2 %以内 |
| 高圧電圧 | 13.5kV (標準) |
| 入力電圧 | DC10.5~17.0V |
| ビデオ入力 | 1.0Vp-p $\pm \frac{1}{6}$ dB、同期負 75Ω終端 |
| 直流再生 | バックポーチタイプ バックポーチレベル：ピーク値2 %以下 平均値10 %~90 % |
| 周波数特性 | 0.1MHz~8MHz (± 3dB) |
| ピーキング | 0dB~15dB (4.0MHz) |
| 同期 | 引き込み範囲：水平 ± 500Hz 以上 垂直 - 10Hz 以上 水平保持範囲：± 500Hz 以上 |
| リトレース時間 | 水平 15 %以下 垂直 5 %以下 |
| 帰線消去時間 | 水平 16 %以下 垂直 6 %以下 |
| 消費電力 | 23W |
| 重量 | 5.0kg (フード含まず) |
| 付属品 | フード (1) ナンバープレート (1) オペレーションアンドメンテナンスマニュアル (1) 精密ねじ (2) ヒューズ (1) |

外形寸法図（単位：mm）



本機の仕様および外観は、改良のため予告なく変更することがあります。ご了承ください。

Section 1 Operation

1-1. Features

The BVF-77/77CE is a 7-inch monochrome electronic viewfinder designed to be mounted on the Sony color camera for studio/OB use.

Power-saving design

The allowable input voltage range is wide (10.5 to 17V). This model has low power consumption (23W).

High-resolution picture

This viewfinder has a high-resolution picture tube. Horizontal resolution is more than 800 lines.

Stable pictures

This highly efficient high-voltage regulation circuit helps to stabilize pictures.

Continuously variable peaking compensation

The continuously variable peaking compensation circuit helps to provide sharp pictures and make it easier to focus the camera.

Tally lamps

This viewfinder is provided with two types of tally lamps which light up when each tally signal has been received.

Superior operation

You can set the viewfinder's height to any one of three positions. The viewfinder can be tilted up 60 degrees or down 40 degrees.

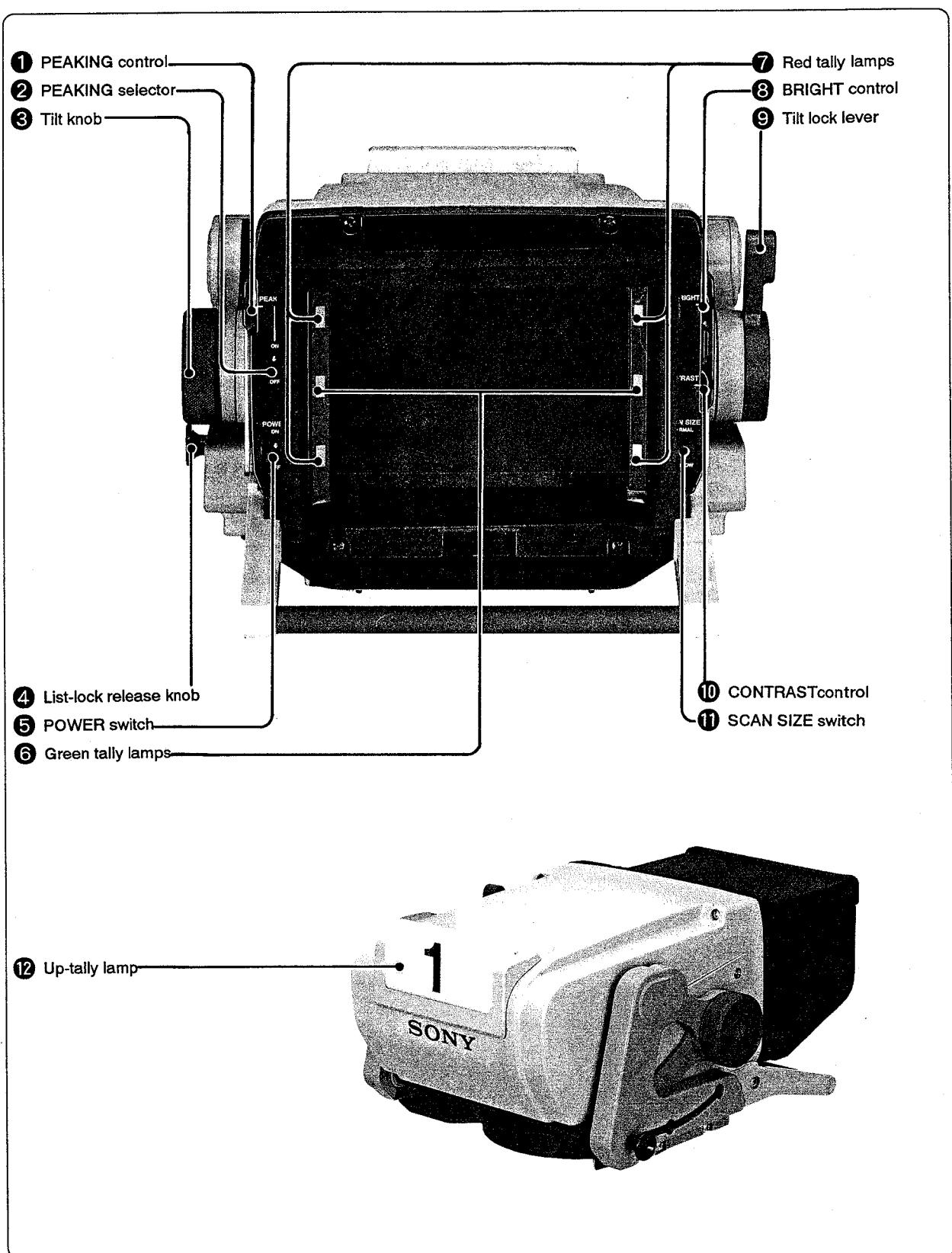
90 degrees of panning is also possible.

The movement of the center of gravity when you move the unit is kept to a minimized.

Rain proof

The protective outer structure enables you to shoot outdoors.

1-2. Location and Functions of Parts and Controls



① PEAKING control * 1

Used for control compensation (peaking) of the picture when the PEAKING selector is set to ON. Compensation increases as the control is turned clockwise. The compensation ranges from 0 to more than 15 dB.

② PEAKING selector

Allows control compensation with the PEAKING control when this selector is set to ON. When it is set to OFF, the PEAKING control does not function, and compensation is equivalent to 0 dB.

③ Tilt knob

Adjusts the desired tilt friction.

④ Lift-lock release knob

Release the viewfinder position lock at the standard factory preset position (the lower position) or at the middle or top position (the angle of the viewfinder is only adjustable at these positions).

Set the height of the viewfinder while pulling the knob.

⑤ POWER switch

ON: The power of the viewfinder is turned on. (Normal position)

OFF: The power of the viewfinder is turned off.

⑥ Green tally lamps * 2

They light up when the camera receives the green tally signal.

⑦ Red tally lamps * 2

They light up when the camera receives the red tally signal.

⑧ BRIGHT control * 1

Used to adjust the picture brightness.

⑨ Tilt lock lever

When setting the lever to the lens side:

The tilt position is locked.

When setting the lever to the camera man's side:

The tilt friction is adjusted by turning the tilt knob.

⑩ CONTRAST control * 1

Used to adjust the picture contrast

⑪ SCAN SIZE switch

NORMAL: The screen size is normal.

NARROW: The screen size is 80% of normal.

⑫ Up-tally lamp

Functions the same as the red tally lamps on the viewfinder screen.

This does not light when the UP TALLY switch on the camera is set to OFF.

- To adjust the brightness of this lamp, refer to the manual for the camera.
- Plates numbered from 0 to 9 (supplied) can be attached to this.

* 1: These controls do not have any effect on the video output signals of the camera.

* 2: The brightness of these lamps is adjustable by internally.

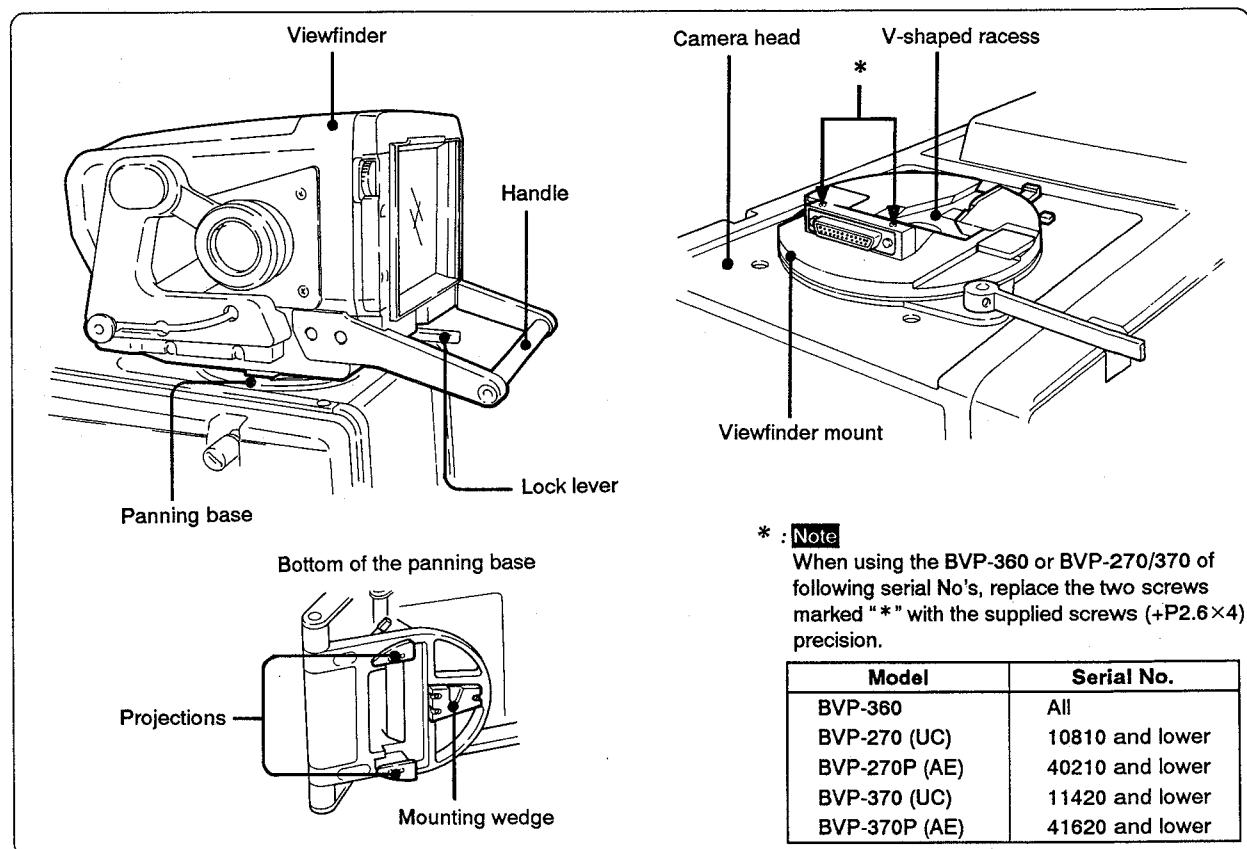
For details, see chapter 5.

1-3. Attaching

1-3-1. Attaching the Viewfinder

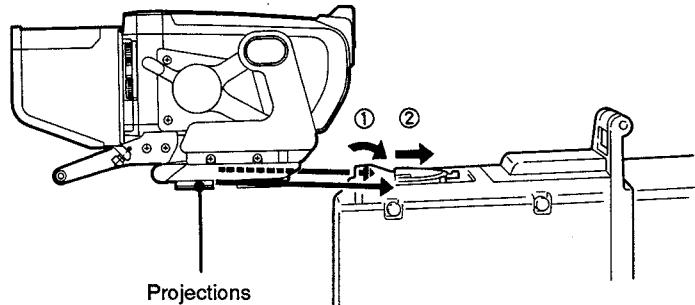
Before attaching the viewfinder, read the note in the following illustration.

Parts used for attaching the viewfinder to the camera

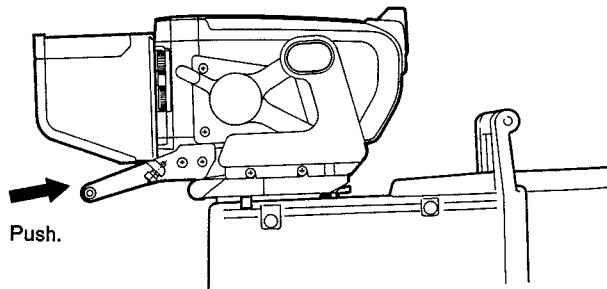


How to attach

- 1 Put the viewfinder on the viewfinder mount of the camera in such position that when you move it forward, the mounting wedge on the bottom of the view finder's panning base will enter the V-shaped recess in the viewfinder mount and the projections on the panning base bottom will come into the positions as illustrated.

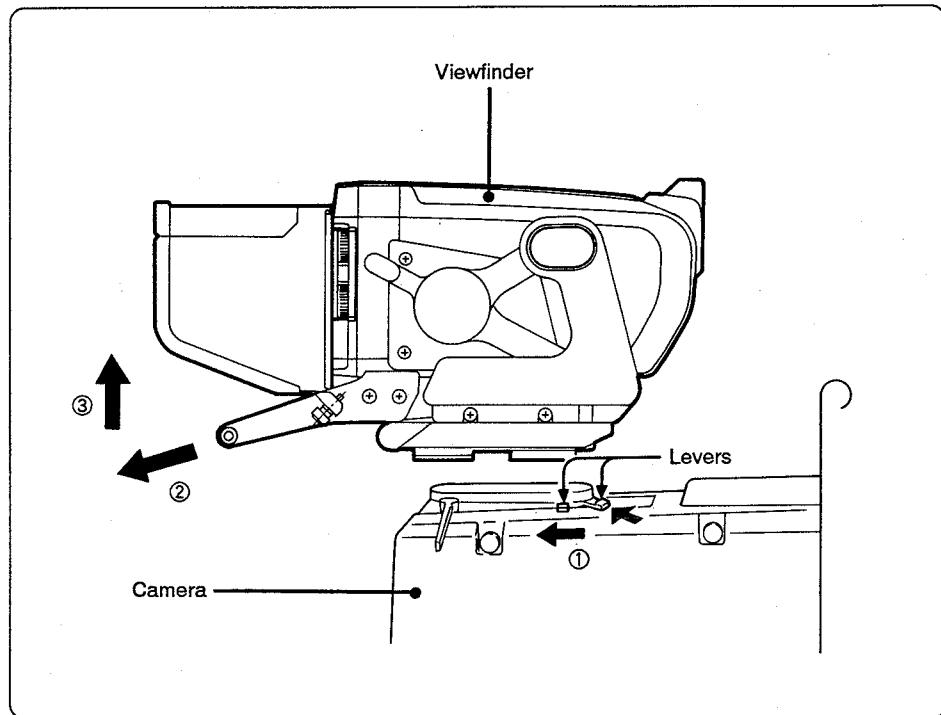


- 2 Push the viewfinder forward by the handle so that the panning base is securely held by the viewfinder mount of the camera.



How to detach

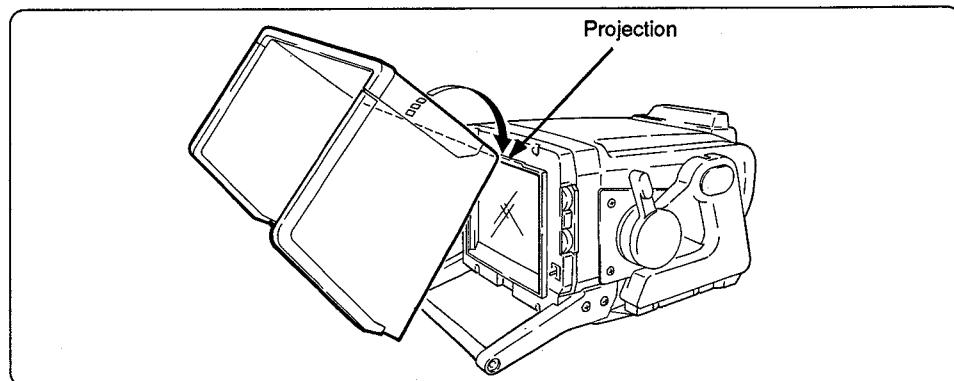
Push the two levers simultaneously as shown by the arrows (①), then pull the handle toward you (②), and then lift up the viewfinder.



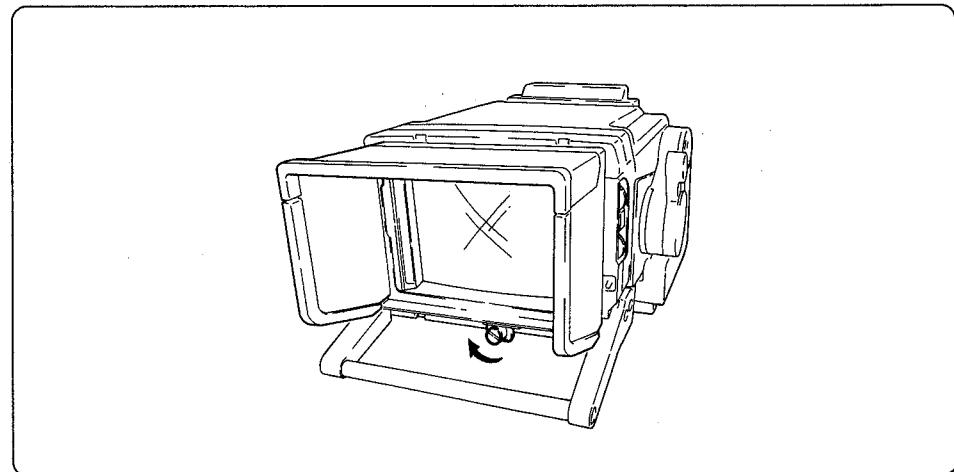
1-3-2. Attaching the supplied studio hood or the VFH-770 optional OB hood

You can attach the VFH-770 in the same way as the studio hood. This section describes the procedure of attaching the studio hood.

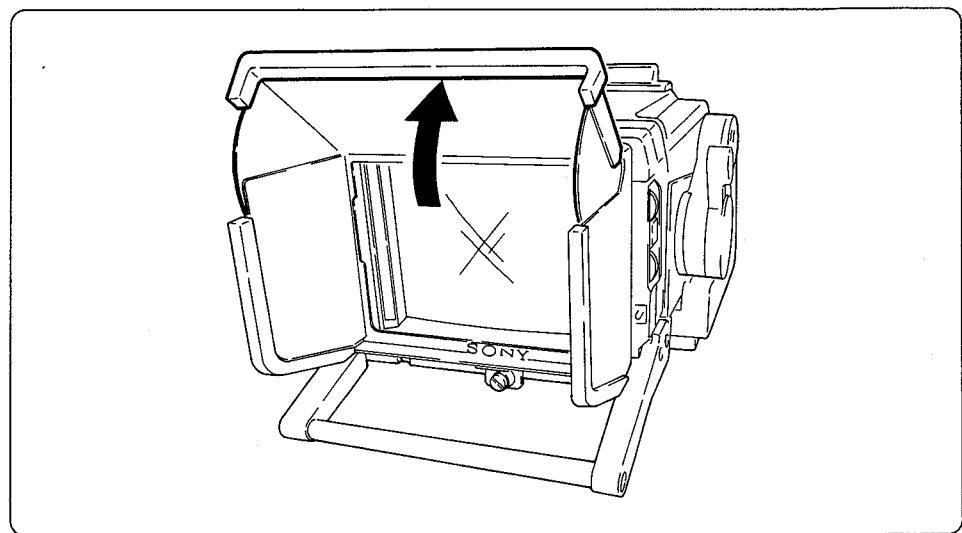
- 1 To attach the hood, hook the upper part of the hood over the projection on the top of the BVF-77/77CE.



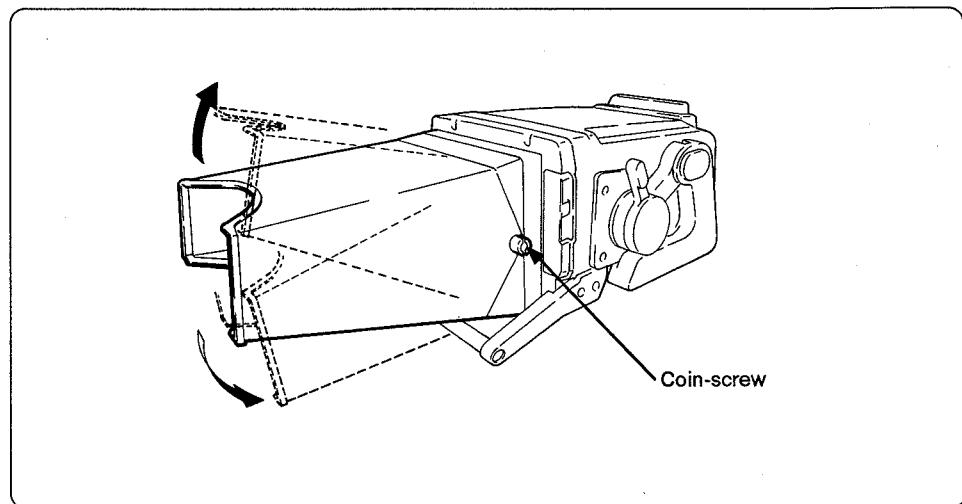
- 2 Tighten the screw to fix the BVF-77/77CE.



The supplied studio hood



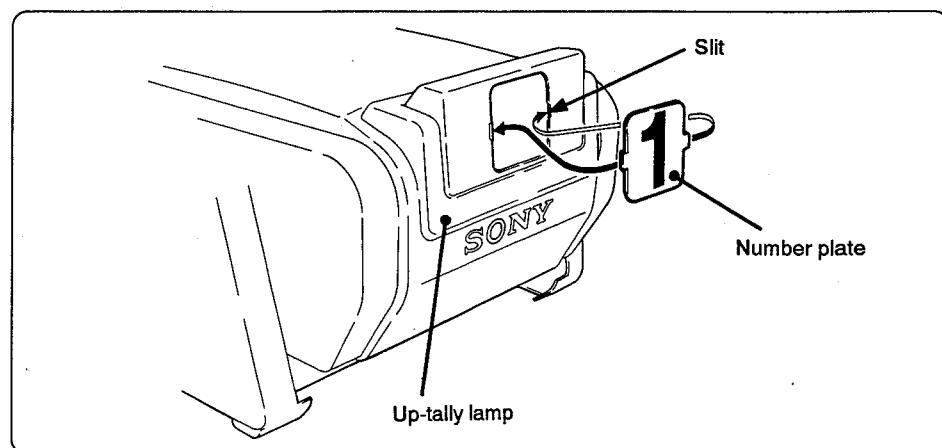
The VFH-770 optional OB hood



- The angle is adjustable by 30 degrees up and down.
- Adjusts the tilt friction of the hood by turning the coin-screw.

1-3-3. Attaching the supplied number plate

Insert the tabs on the sides of the number plate into each slit in the up-tally lamp.

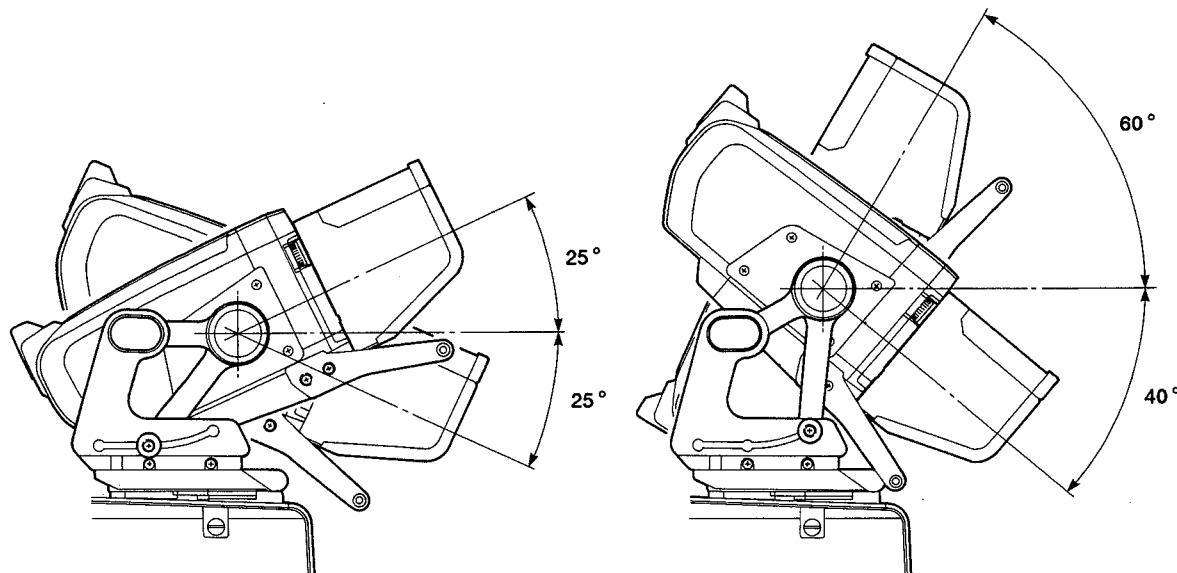


1-4. Operation

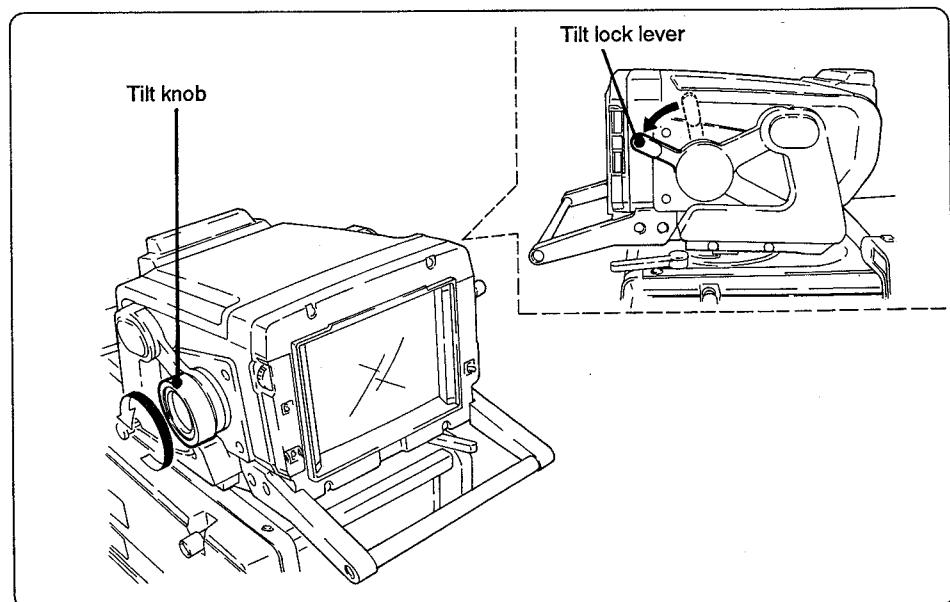
1-4-1. Adjusting the Angle of the Viewfinder

You can adjust the angle of the viewfinder so that you can see its screen comfortably.

Tilting the viewfinder



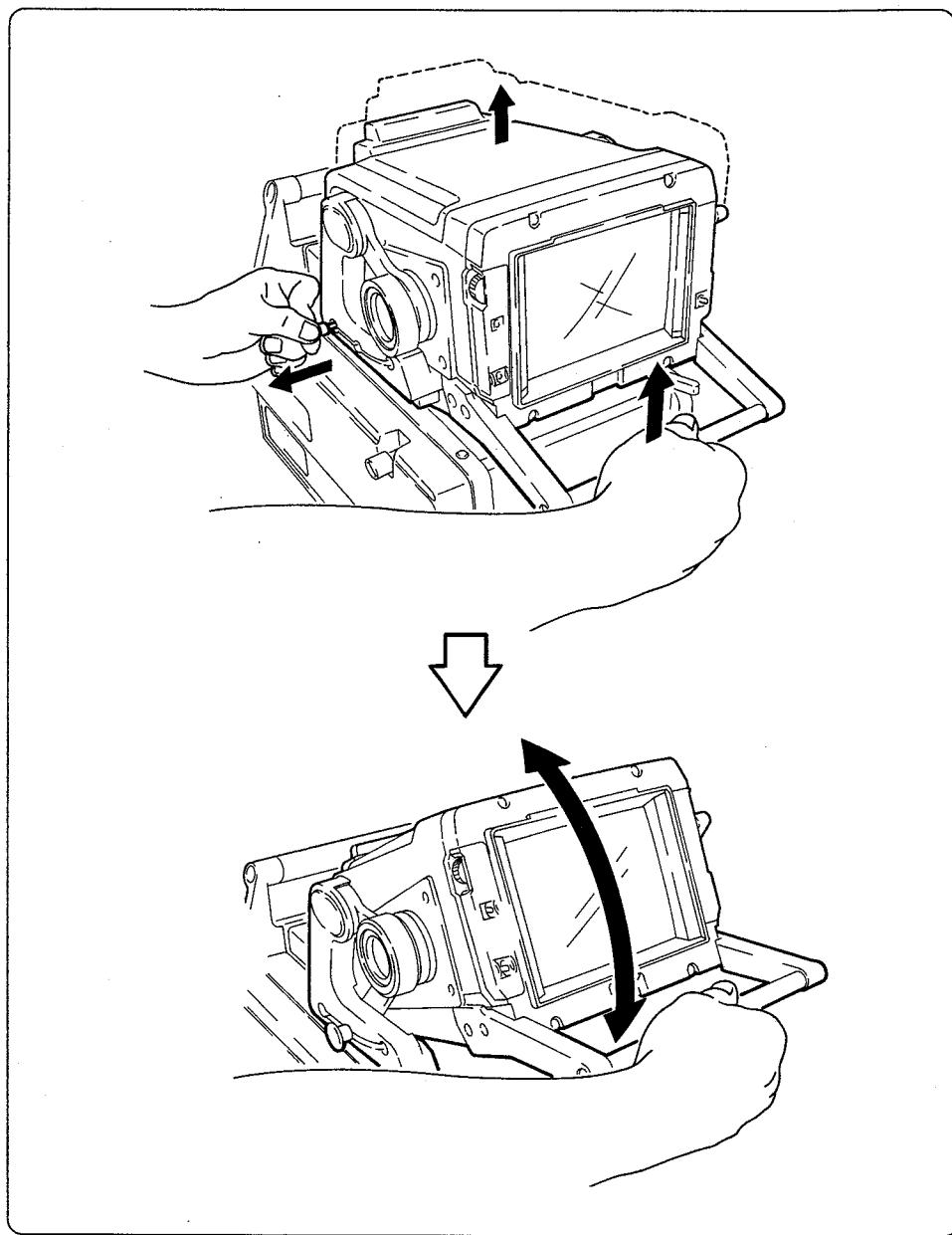
- 1 Sets the tilt lock lever to the cameraman side.



- 2 While pulling the lift-lock release knob and holding the handle, pull the viewfinder up to the middle or top position.

Note when raising the viewfinder:

Be sure to hold the handle and the lift-lock release knob when you raise the viewfinder. If you raise the viewfinder while pulling the lift-lock release knob only, the viewfinder position may not lock normally.



- 3 Adjust your desired tilt friction by turning the tilt knob.

Note when moving the camera from a place to another

Set the tilt lock lever to the lens side after lowering the viewfinder to its standard position. (Then check that the lift-lock release knob is completely locked.)

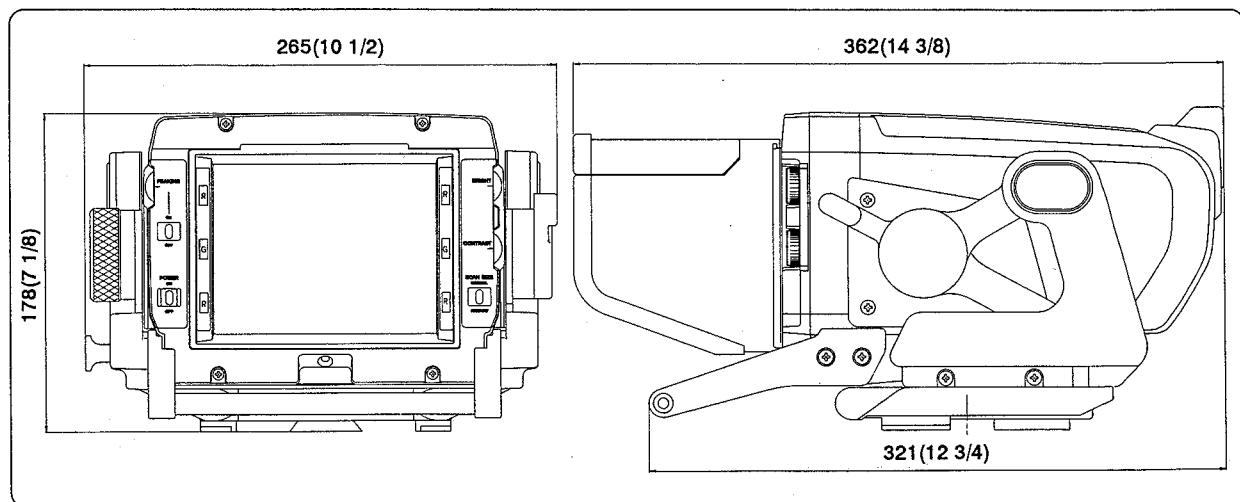
Panning the viewfinder

For details, refer to section 1-5 of BVP-360/270/370's manual.

1-5. SPECIFICATIONS

| | |
|----------------------|--|
| CRT | 7-inch monochrome 160×131 mm (w/h) (6 3/8×5 1/4 inches) 90-degree deflection |
| Picture size | 120×90 mm (4 3/4×3 5/8 inches) |
| Brightness | 500 NIT |
| Resolution | 800 lines at center 600 lines at edges |
| Geometric distortion | Within 1.0% |
| EHT regulation | Within ± 2% |
| EHT voltage | 13.5 kV (standard) |
| Power sources | 10.5 V to 17.0V dc |
| Video input | 1.0 Vp-p 5dB, sync negative. 75-ohm terminated |
| DC restoration | Back porch type Back porch level: within 2% of peak 10 to 90% APL |
| Frequency response | 0.1 MHz to 8 MHz (± 3 dB) |
| Aperture correction | 0 dB to 15 dB (4 MHz) |
| Synchronization | Line pull range: Horizontal: more than ± 500 Hz Vertical: more than -10 Hz Line hold range: more than ± 500 Hz |
| Retrace time | Horizontal: within 15% Vertical: within 5% |
| Blanking time | Horizontal: within 16% Vertical: within 6% |
| Power consumption | 23 W |
| Weight | 5.0kg (11 lb) excluding the hood |
| Accessories supplied | Hood (1) Number plate (1) Operation and maintenance manual (1) Screws (2) Fuse (1) |

Dimensions (Unit: mm (inches))



Design and specifications subject to change without notice.

Teil 1 Betrieb

1-1. Besondere Merkmale

Der BVF-77/77CE ist ein für die Sony Farbkamera für Rundfunkanwendung konzipierter elektronischer 7-Zoll-Schwarzweißsucher.

Sparsam

Der BVF-77/77CE weist einen breiten zulässigen Eingangsspannungsbereich von 10 bis 17 V bei einer geringen Leistungsaufnahme von nur 25 W auf.

Hohe Auflösung

Der Sucher ist mit einer Bildröhre hoher Auflösung ausgestattet. Die Horizontalauflösung beträgt über 800 Zeilen.

Stabiles Bild

Der äußerst effizient arbeitende Hochspannungsregler sorgt unter allen Bedingungen für ein stabiles Bild.

Stufenlos einstellbarer Entzerrerschaltkreis

Der stufenlos einstellbare Entzerrerschaltkreis sichert scharfe Bilder und erleichtert die Scharfeinstellung der Kamera.

Kontrolllampen

Dieser Sucher ist mit zwei verschiedenen Typen von Kontrolllampen ausgestattet, die nach Empfang des jeweiligen Kontrollsinalns aufleuchten.

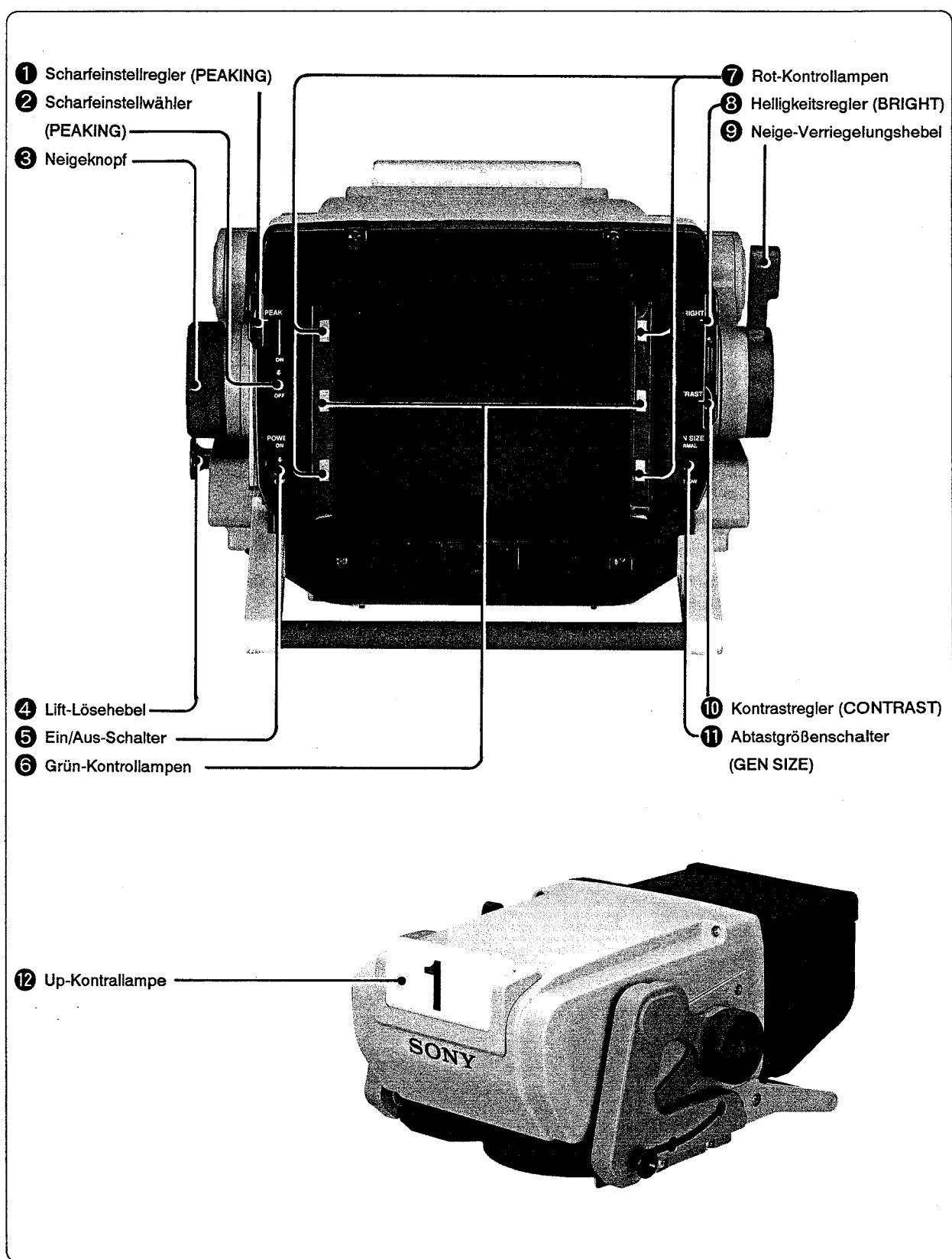
Benutzerfreundliche Auslegung

Der Sucher kann in drei Höhen fixiert werden. Darüber hinaus kann der Sucher um 60° nach oben, um 40° nach unten und um 90° horizontal geschwenkt werden.
Der Schwerpunkt ändert sich dabei nur minimal.

Spritzwassergeschützt

Dank der spritzwassergeschützten Auslegung kann auch im Freien problemlos aufgenommen werden.

1-2. Funktion Der Teile und Regler



① Scharfeinstellregler (PEAKING) * 1

Dieser Regler dient zur Konturenkompensation (Scharfeinstellung) des Bilds, wenn der PEAKING-Wähler eingeschaltet (ON) ist. Durch Drehen des Reglers im Uhrzeigersinn wird die Kompensation erhöht. Die Kompensation kann zwischen 0 und über 12 dB eingestellt werden.

② Scharfeinstellwähler (PEAKING)

Ermöglicht bei Einstellung auf ON Konturenkompensation mit dem PEAKING-Regler. Wenn dieser Wähler ausgeschaltet (OFF) ist, funktioniert der PEAKING-Regler nicht und die Kompensation ist 0 dB.

③ Neigeknopf

Zur Einstellung der Neige-Reibung des Suchers.

④ Lift-Lösehebel

Zum Lösen der Sucher-Verriegelung in der werksseitigen Standardposition (untere Position), in der mittleren Position oder in der oberen Position. (Der Winkel des Suchers kann nur in der oberen Position verstellt werden.)

Beim Einstellen der Höhe des Suchers ist dieser Hebel gezogen zu halten.

⑤ Ein/Aus-Schalter (POWER)

ON: Zum Einschalten des Suchers (Normalposition).

OFF: Zum Ausschalten des Suchers.

⑥ Grün-Kontrolllampen * 2

Diese Lampen leuchten, wenn die Kamera das Grün-Kontrollsiegel empfängt.

⑦ Rot-Kontrolllampen * 2

Diese Lampen leuchten auf, wenn die Kamera das Rot-Kontrollsiegel empfängt.

⑧ Helligkeitsregler (BRIGHT) * 1

Mit diesem Regler wird die Bildhelligkeit eingestellt.

⑨ Neige-Verriegelungshebel

Wenn der Hebel in die vordere Position gestellt wird, ist die Neige position fixiert.

Wenn der Hebel auf die Objektivseite gestellt wird, kann die Neige position mit dem Neigeknopf eingestellt werden.

⑩ Kontrastregler (CONTRAST) * 1

Mit diesem Regler wird der Bildkontrast eingestellt.

⑪ Abtastgrößenschalter (GEN SIZE)

NORMAL: Für normale Bildgröße.

NARROW: Für eine Bildgröße von 80%.

⑫ Up-Kontrolllampe

Diese Lampe funktioniert wie die Rot-Kontrolllampen des Sucherschirms.

Die Lampe leuchtet nicht auf, wenn der UP TALLY-Schalter an der Kamera auf OFF gestellt ist.

- Zur Einstellung der Lampen-Helligkeit siehe Bedienungsanleitung der Kamera.
- Die mitgelieferten Nummernschilder 0 bis 9 können angebracht werden.

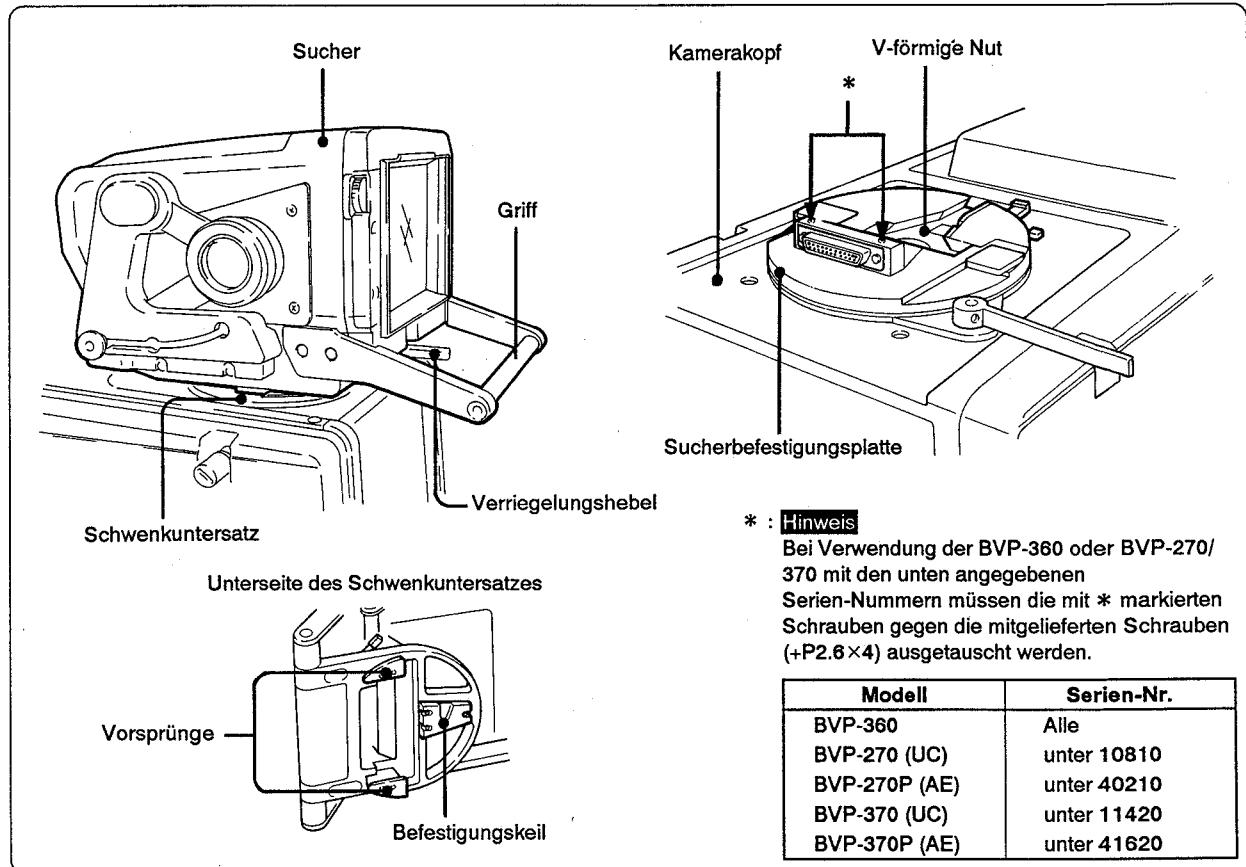
*1: Durch diese Regler werden die Video-Ausgangs signale der Kamera nicht beeinflußt.

*2: Die Helligkeit dieser Lampen kann intern eingestellt werden. Siehe hierzu Kapitel 5.

1-3. Anbringung

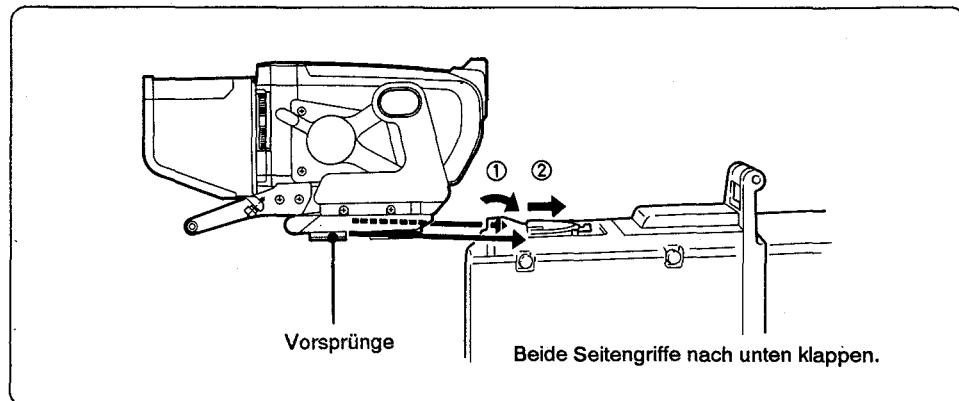
1-3-1. Anbringen des Suchers an der Kamera

Notwendige Teile zum Anbringen des Suchers an der Kamera

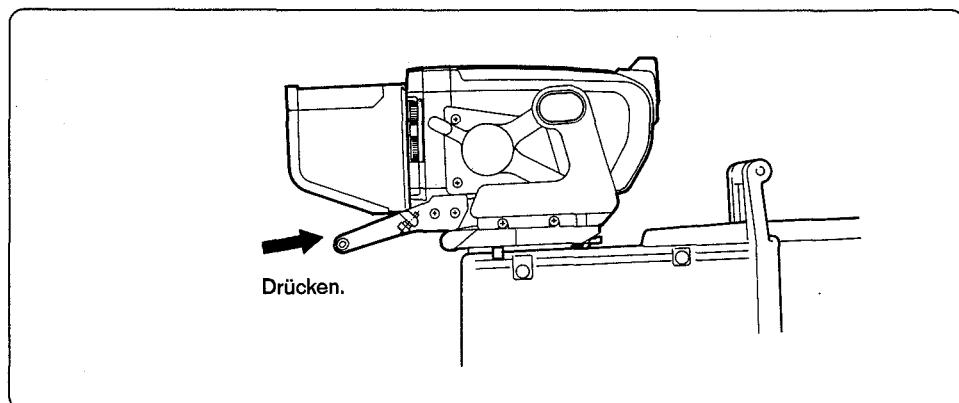


Anbringen des Suchers

- 1 Den Sucher so auf der Sucherbefestigungsplatte an der Kamera positionieren, daß beim Bewegen nach vorne der Befestigungskeil an der Unterseite des Schwenkuntersatzes in die V-förmige Nut der Sucherbefestigungsplatte eingreift. Dadurch werden die Vorsprünge an der Unterseite des Schwenkuntersatzes in die Positionen gebracht, die in der Abbildung gezeigt sind.

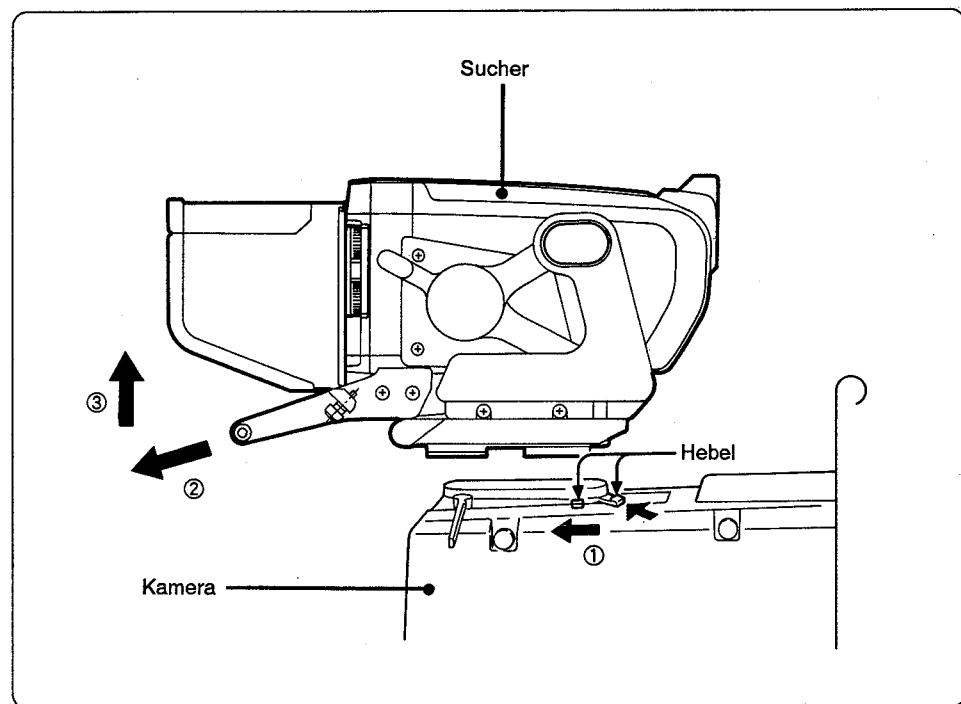


- 2 Den Sucher am Griff so nach vorne drücken, daß der Schwenkuntersatz sicher von der Sucherbefestigungsplatte fixiert wird.



Abnehmen des Suchers

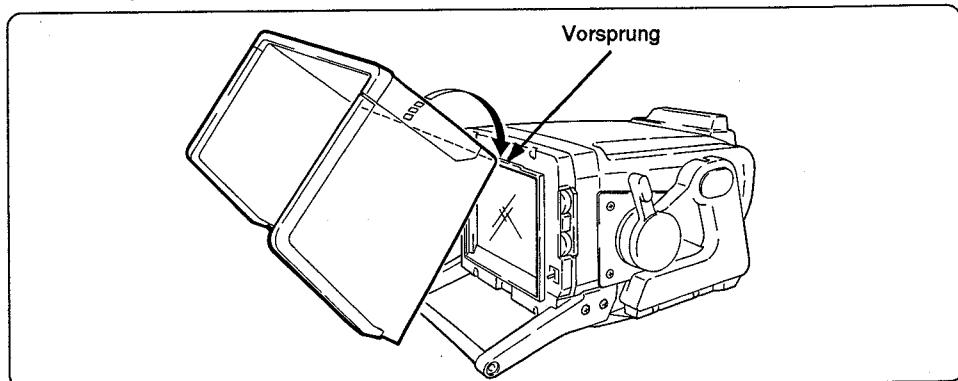
Wie durch die Pfeile (①) gezeigt, gleichzeitig auf die beiden Hebel drücken, dann den Griff zum Körper ziehen (②) und den Sucher nach oben abnehmen.



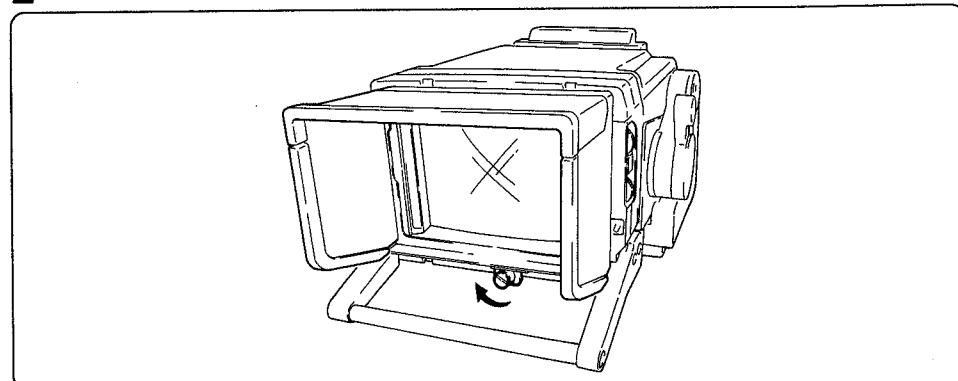
1-3-2. Anbringen der mitgelieferten Studio-Haube oder der OB-Haube VFH-770 (Sonderzubehör)

Die Haube VFH-770 wird in gleicher Weise wie die Studio-Haube angebracht.
Nachstehend ist die Anbringung der Studio-Haube beschrieben.

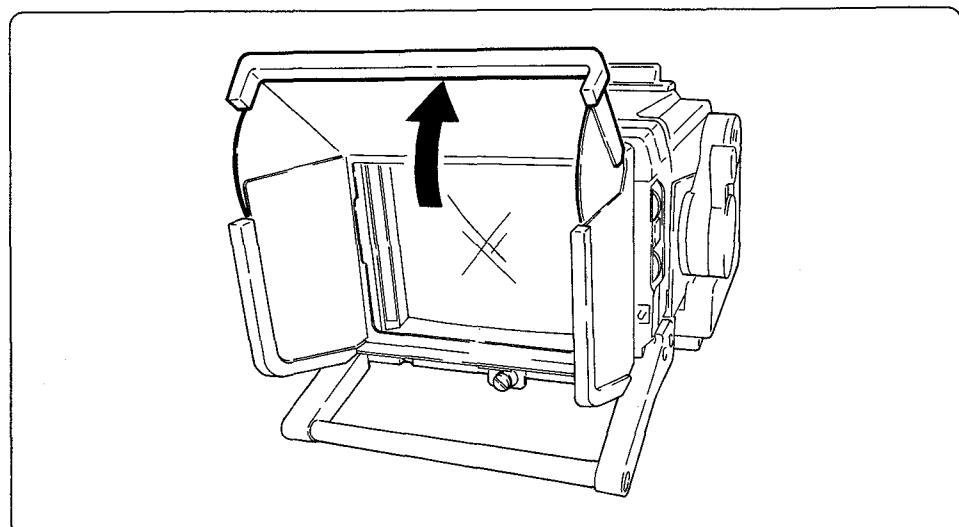
- 1 Die Haube mit ihrem oberen Teil in den Vorsprung oben auf dem BVF-77/77CE einhängen.



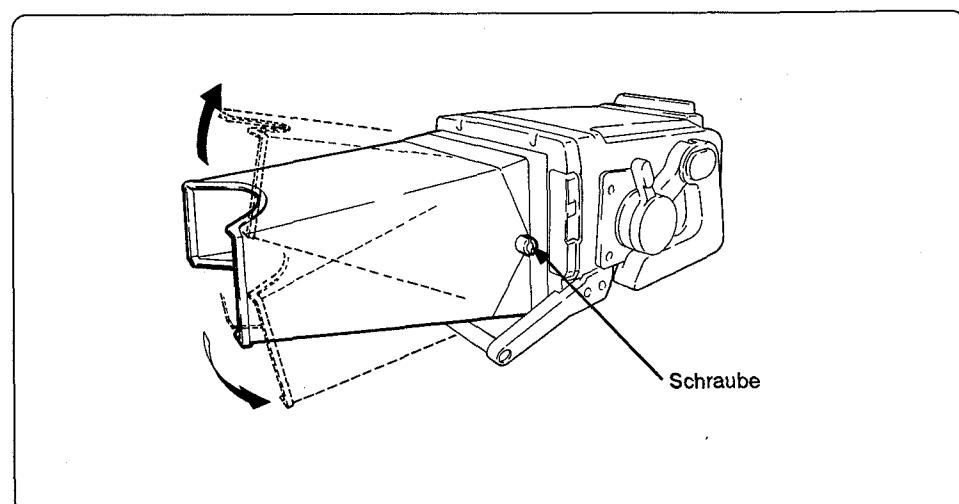
- 2 Zum Sichern am BVF-77/77CE die Schraube festziehen.



Studio-Haube (mitgeliefert)

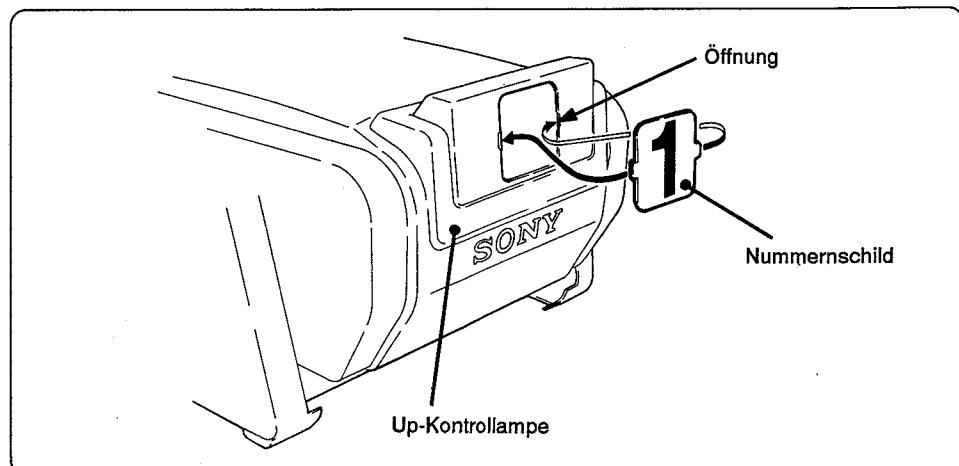


OB-Haube VFH-770 (sondeszubehör)



1-3-3. Anbringen des mitgelieferten Nummernschilds

Das Nummernschild mit seinen seitlichen Vorsprüngen in die entsprechenden Öffnungen der Up-Kontrolllampe einhängen.

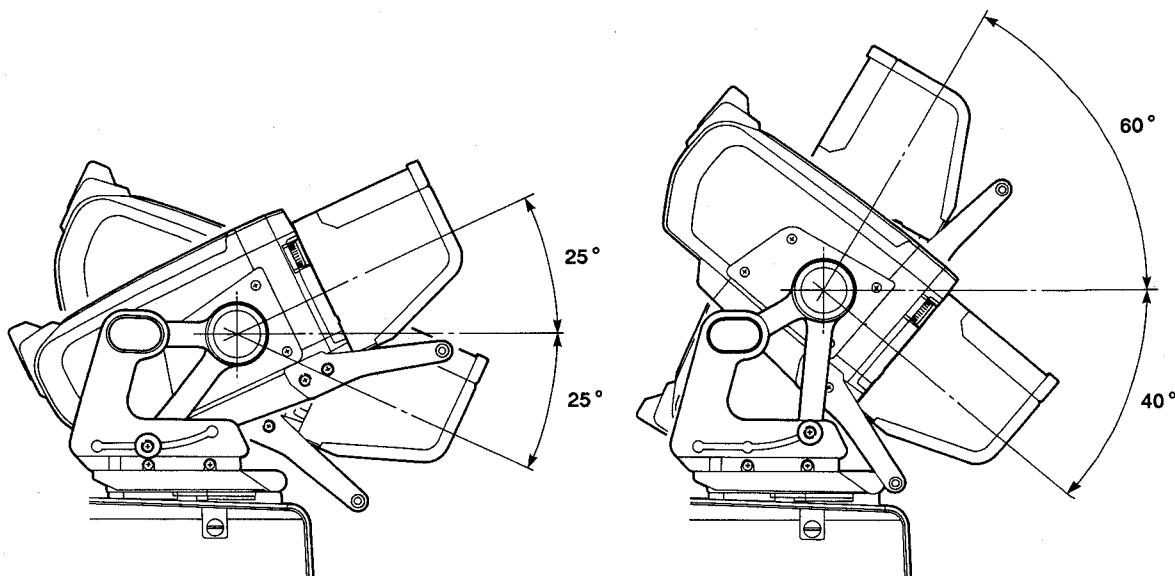


1-4. Betrieb

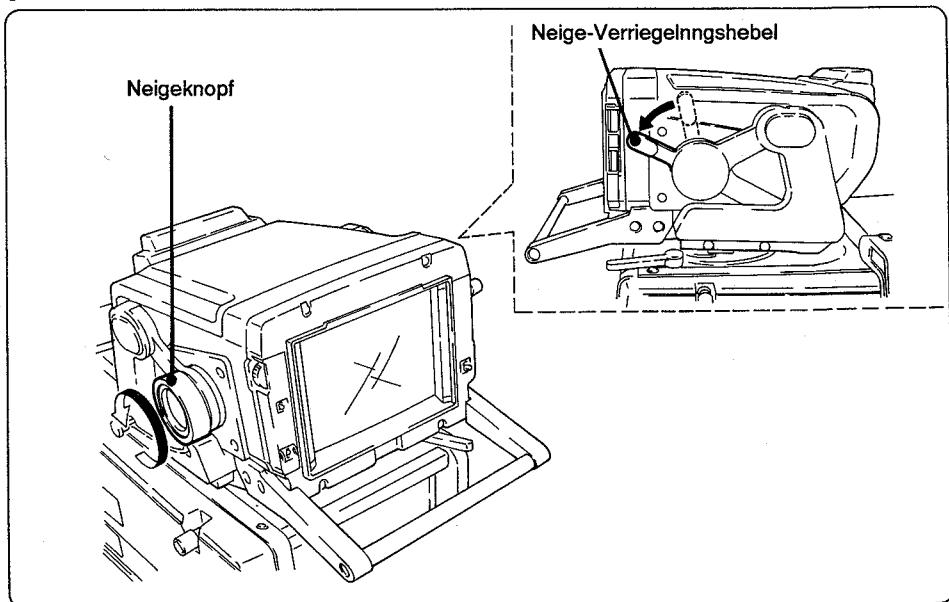
1-4-1. Winkeleinstellung des Suchers

Die Winkelneigung des Suchers läßt sich so einstellen, daß sein Bildschirm mühelos betrachtet werden kann.

Neigen des Suchers



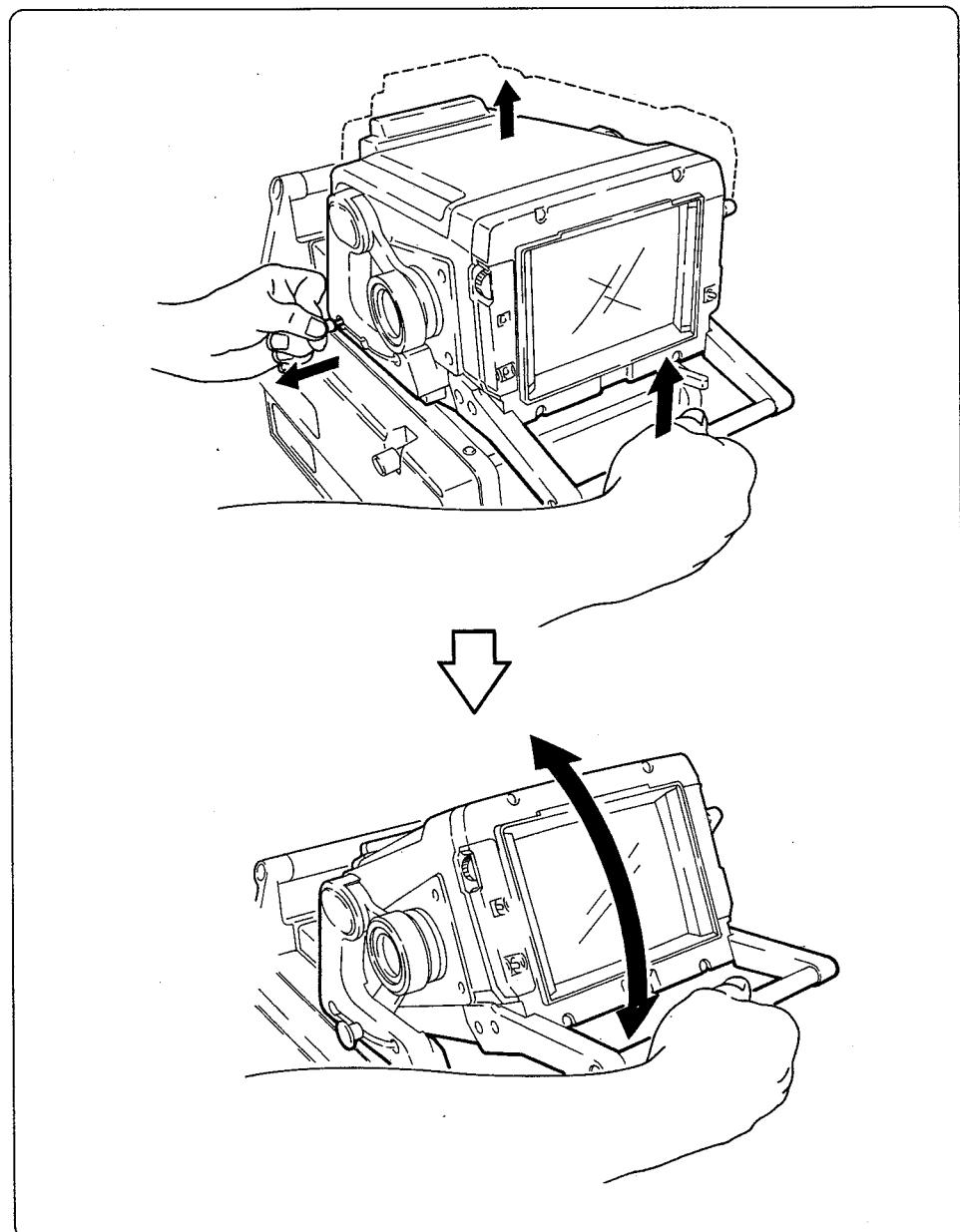
- 1 Den Neige-Verriegelungshebel in die vordere Position stellen.



- 2** Den Lift-Lösehebel ziehen und den Sucher am Griff in die mittlere oder obere Position ziehen.

Hinweis zum Anheben des Suchers

Fassen Sie beim Anheben des Suchers am Griff und am Lift-Lösehebel an. Wenn nur der Lift-Lösehebel gezogen wird, rastet der Sucher möglicherweise nicht richtig ein.



- 3** Die Neige-Reibung am Neigeknopf einstellen.

Hinweis zum Transport der Kamera

Senken Sie den Sucher in die Standardposition ab und stellen Sie den Neige-Verriegelungshebel in die vordere Position.
(Überprüfen Sie dann, ob der Lift-Lösehebel richtig verriegelt ist.)

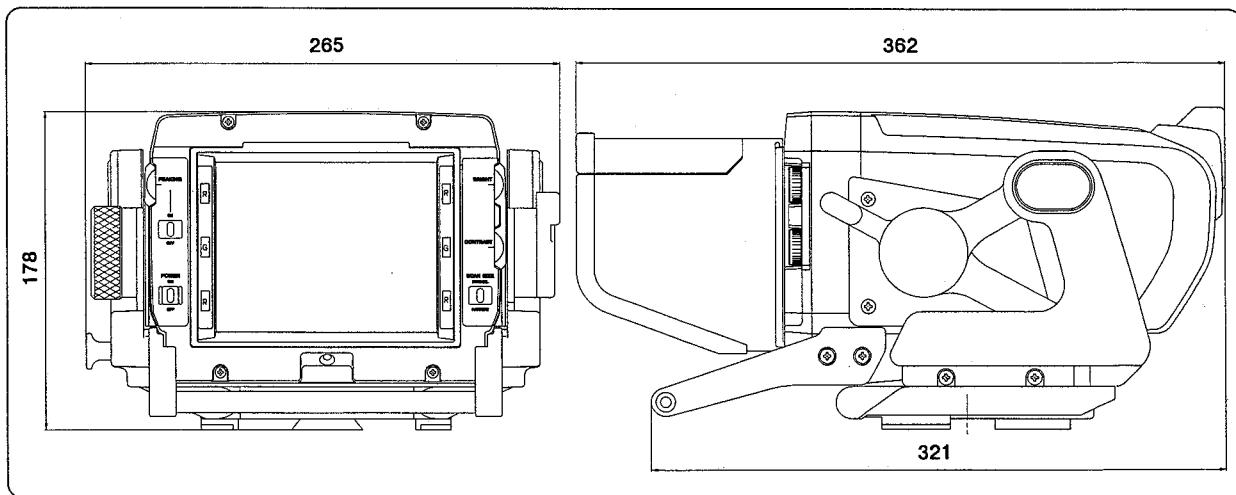
Zum Schwenken des Suchers

Genaueres zum Schwenken des Suchers siehe Kapitel 1-5 der BVP-360/270/370 Anleitung.

1-5. TECHNISCHE DATEN

| | |
|---------------------------|---|
| Bildröhre | 7 Zoll, monochrom 160×131 mm (B/H) 90° Ablenkung |
| Bildformat | 120×90 mm |
| Helligkeit | 500 NIT |
| Auflösung | 800 Zeilen in der Mitte 600 Zeilen am Rand |
| Geometrische Verzeichnung | Innerhalb 1,0% |
| Hochspannungsregelung | Innerhalb $\pm 2\%$ |
| Hochspannung | 13,5 kV (Standard) |
| Spannungsversorgung | 10,5 V bis 17,0 V Gleichspannung |
| Video-Eingang | 1,0 Vss ± 4 dB, Video positiv, 75 Ohm Abschluß |
| Schwarzwerthaltung | Hintere Schwarzschulter Hinterer Schwarzschulterpegel: innerhalb 2% der Spitze Luminanz 10 bis 90% APL |
| Frequenzgang | 0,1 MHz bis 8 MHz (± 3 dB) |
| Aperturkorrektur | 0 dB bis 15 dB (4 MHz) |
| Synchronisierung | Zeilenexpansionsbereich, Horizontal: über ± 500 Hz Vertikal: über ± 10 Hz Zeilenfangbereich: über ± 500 Hz |
| Rücklaufzeit | Horizontal: innerhalb 15% Vertikal: innerhalb 5% |
| Austastzeit | Horizontal: innerhalb von 16% Vertikal: innerhalb von 6% |
| Leistungsaufnahme | 23 W |
| Gewicht | 5,0 kg ausschl. Haube |
| Mitgeliefertes Zubehör | Haube (1) Nummernschild (1) Betriebs- und Wartungsanleitung (1) Schrauben (2) Sicherung (1) |

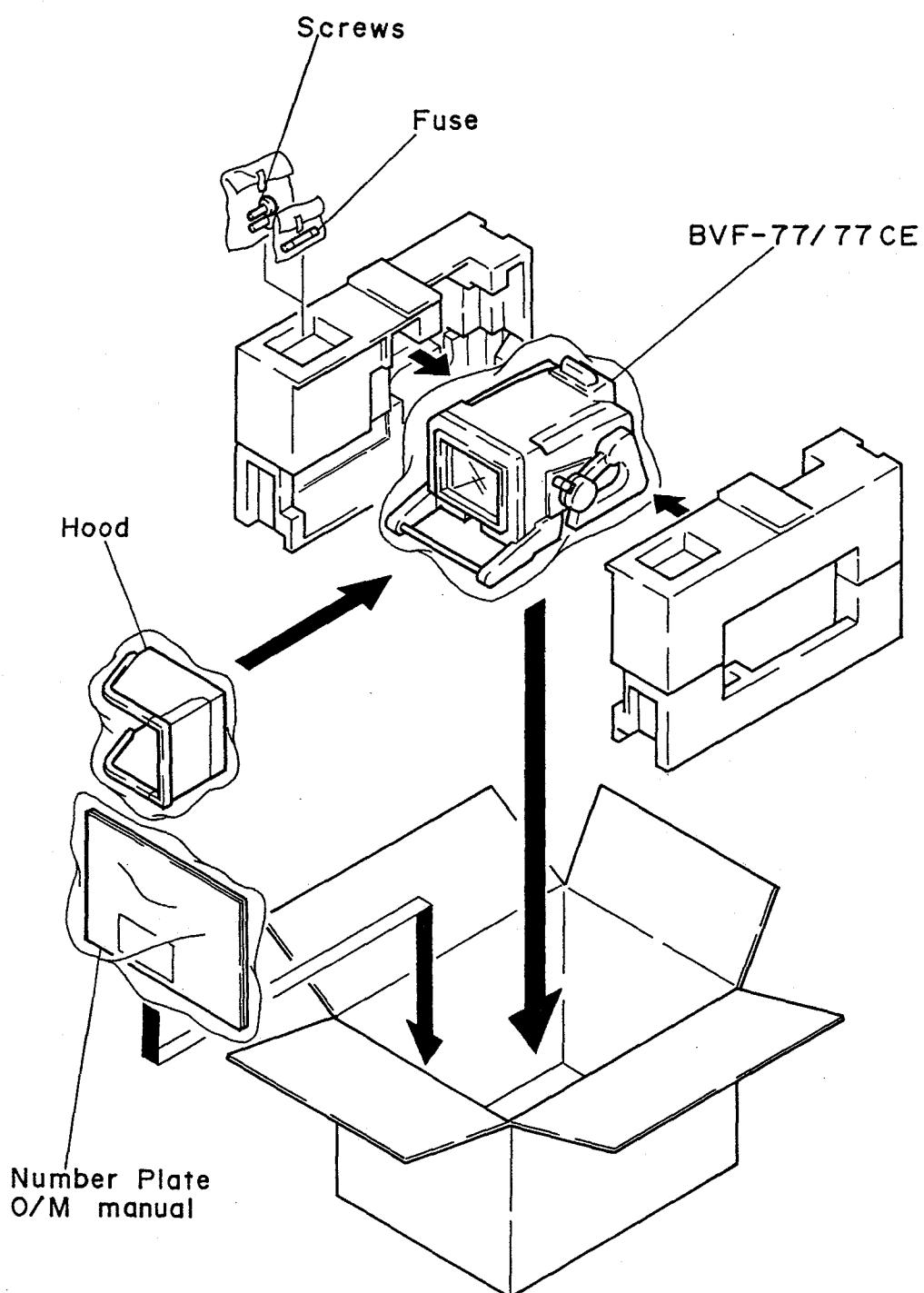
Abmessungen (Einheit: mm)



Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

第2章 設 置

2-1. 開梱と再梱包

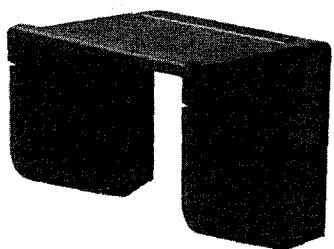


2-2. 標準付属品

屋内フード組立：1組

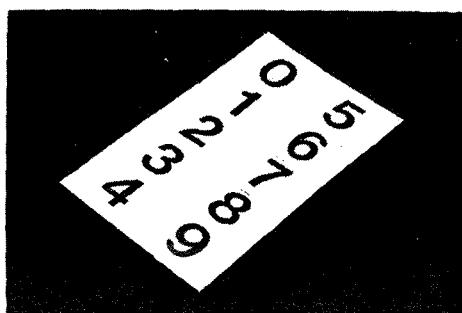
(ソニー部品番号 X-3166-281-1)

屋内スタジオで蛍光灯などの反射光を防止します。



ナンバープレート：1枚

(ソニー部品番号 4-027-937-01)



ガラス筒型ヒューズ (3.15A 250V) : 1個

(ソニー部品番号 1-576-133-11)

PS-269基板にマウントされているヒューズ (F301) の予備として使用して下さい。

精密ネジ + P2.6 × 4 : 2個

(ソニー部品番号 7-627-556-38)

BVF-77をBVP-370/270/360A/360に取り付ける際に使用します。詳しくは第1章の取扱い説明をご覧下さい。

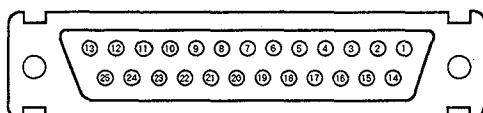
O/M マニュアル : 1冊

BVF-77の取り扱い説明書とサービスマニュアルの合冊です。

2-3. 適合コネクター／ケーブル

2-3-1. コネクターの入出力信号

主なコネクターの入出力信号は次のとおりです。



(25P, FEMALE)

| Pin No. | SIGNAL | SPECIFICATION | Pin No. | SIGNAL | SPECIFICATION |
|---------|----------------|---|---------|---------------|---|
| 1 | NC | | 14 | NC | |
| 2 | NC | | 15 | NC | |
| 3 | VIDEO IN (X) | VS = 10Vp-p (100%) Z _i = 75Ω | 16 | VIDEO IN (G) | GND for VIDEO |
| 4 | NC | | 17 | CHASSIS GND | |
| 5 | NC | | 18 | NC | |
| 6 | NC | | 19 | GND | |
| 7 | + 12V IN | + 12Vdc 4A | 20 | GND | |
| 8 | + 12V IN | + 12Vdc 4A | 21 | TALLY GND | GND for TALLY |
| 9 | UP TALLY ON IN | ON : + 12V OFF : High impedance | 22 | NC | |
| 10 | NC | | 23 | G TALLY ON IN | ON : 2.0 ± 0.5V (Z _R = 300Ω) OFF : 0 + 0.5V |
| 11 | R TALLY ON IN | ON : 2.0 ± 0.5V (Z _R = 300Ω) OFF : 0 + 0.5V | 24 | NC | |
| 12 | NC | | 25 | NC | |
| 13 | NC | | | | |

2-3-2. 接続コネクター

設置時、サービス時などにおいて下記のコネクターにケーブルを接続する際には、その先端に下記のコネクターまたは同等品を使用してください。

| 接続するケーブル側のコネクターの部品番号および名称 |
|----------------------------------|
| 1-562-989-11 CONNECTOR 25P, MALE |

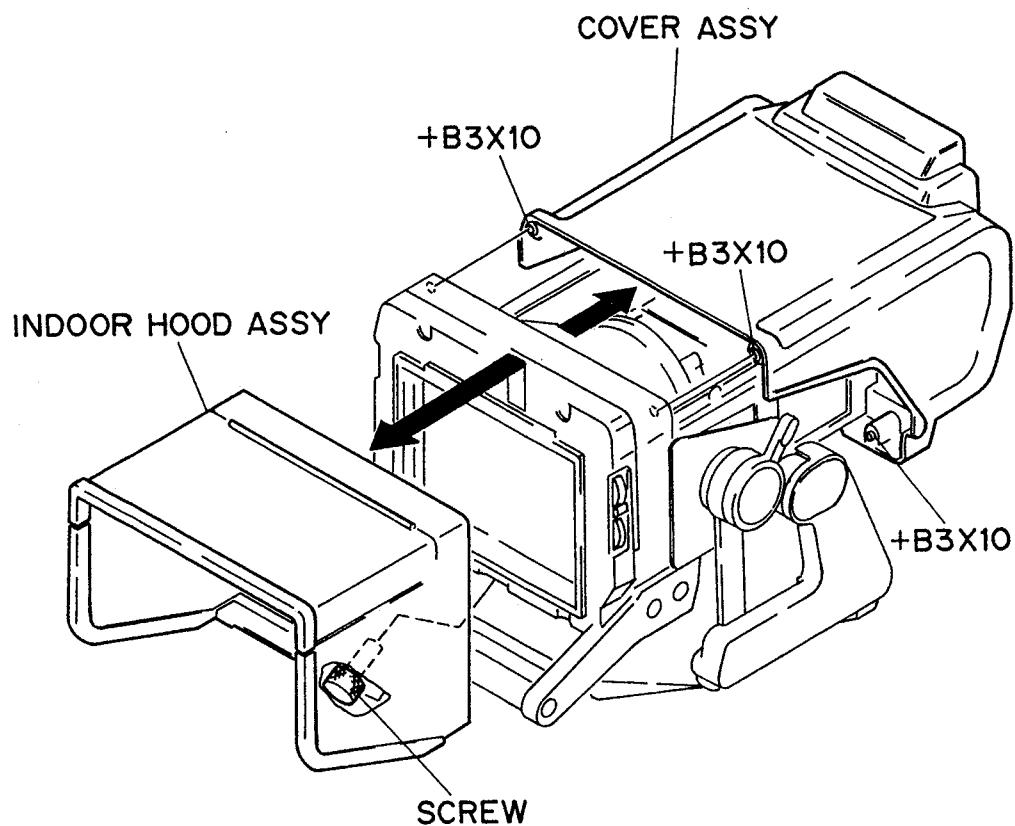
第3章

サービスインフォメーション

3-1. 外装の外し方

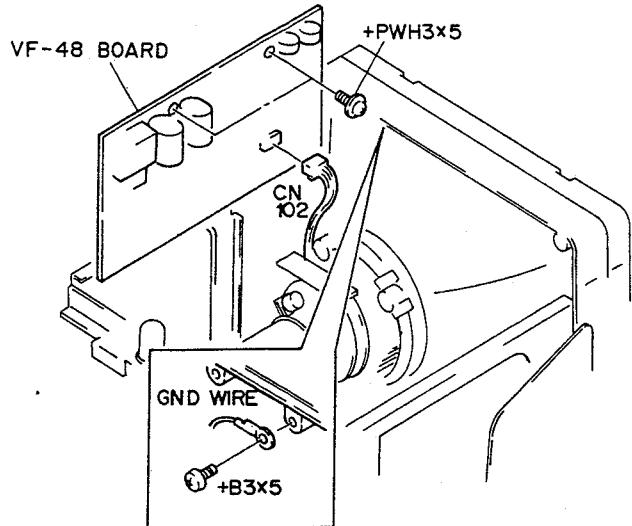
3-1-1. INDOOR HOOD ASSYおよびCOVER ASSYの外し方

1. 図に示すSCREWを緩め、INDOOR HOOD ASSYを矢印方向に取り外します。
2. 図に示すねじ (+ B3×10) 4本を緩めCOVER ASSYを矢印方向に取り外します。

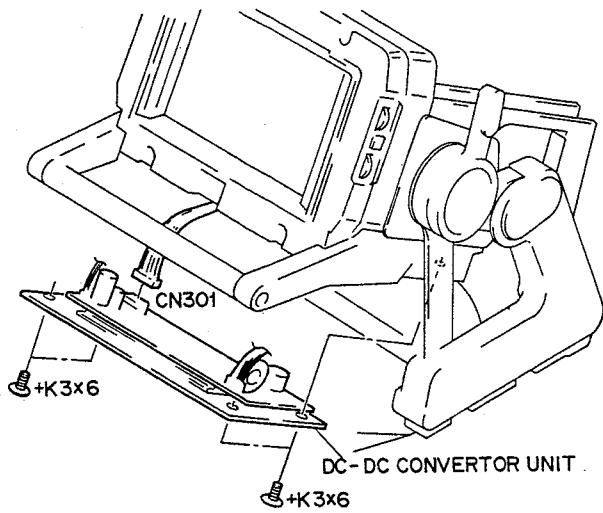


3-1-2. TILT TABLE ASSYの外し方

1. 3-1-1項に従ってINDOOR HOOD ASSYおよびCOVER ASSYを取り外します。
2. 図に示すねじ (+ PWH3 × 5) 2本を外して、VF-48 BOARDを引き出します。
3. VF-48 BOARDのCN102を抜きます。
4. GND WIREを止めているねじ (+ B3 × 5) を外します。

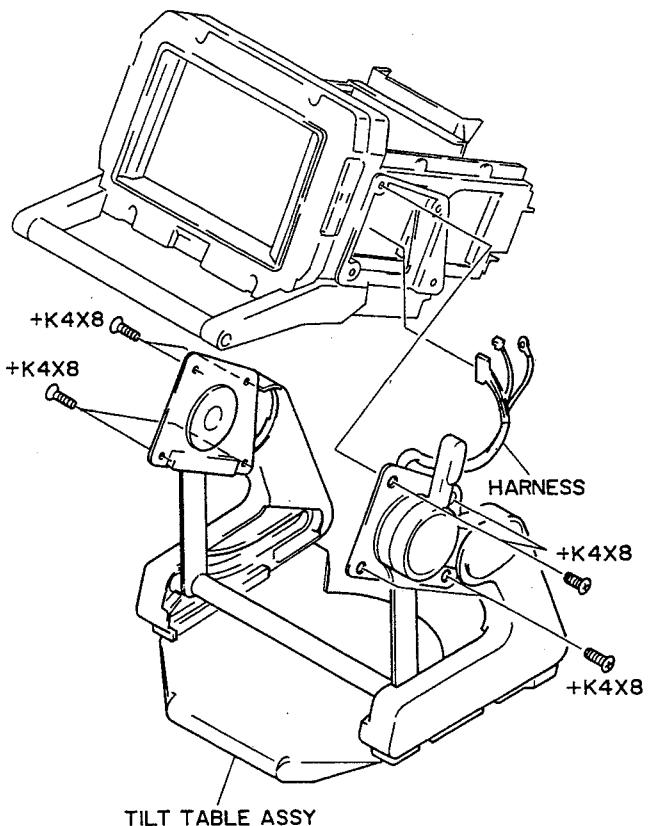


5. 図に示すねじ (+ K3 × 6) 4本を緩めて、DC-DC CONVERTOR UNITを取り外します。
6. PS-269 BOARDのCN301を抜きます。



7. 図に示すねじ (+ K4 × 8) 8本を外し、TILT TABLE ASSYを取り外します。

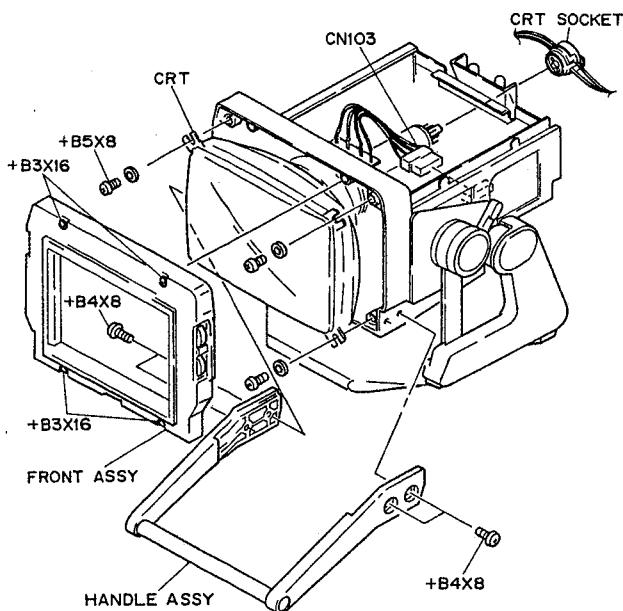
8. HARNESSをファインダー本体より引き出します。



3-2. 主要部品の交換方法

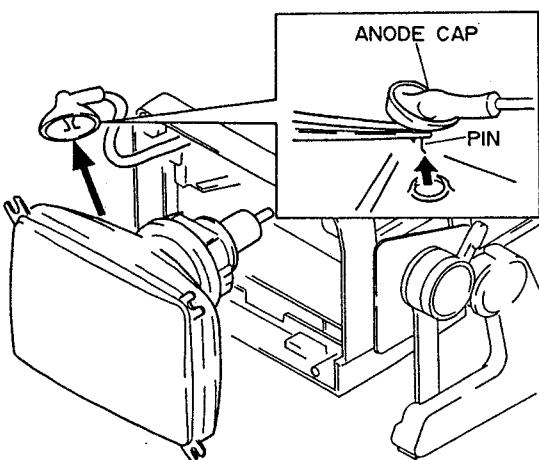
3-2-1. CRT および DEFLECTION YOKE の交換方法

1. 3-1-1 項を参照して外装部品を取り外します。
2. 図に示すねじ (+B4×8) 4本を外して、HANDLE ASSY を取り外します。
3. ねじ (+B3×16) 4本を緩め、FRONT ASSY を取り外します。
4. コネクター CN103 および CRT SOCKET を外します。
5. ねじ (+B5×8) 4本を外して、CRT を前方に引き出します。

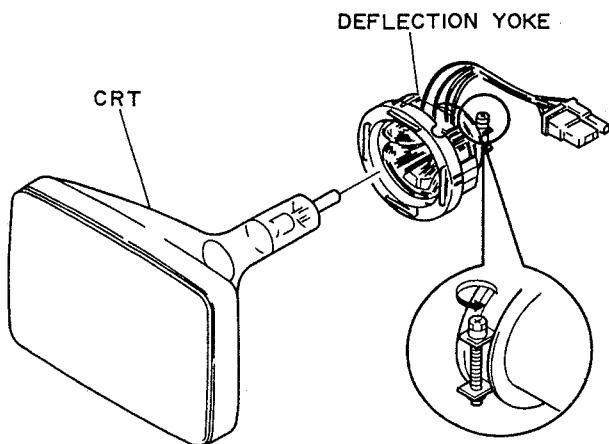


6. ピンセットにてANODE PINをはさみ、ANODE CAPを外します。

注意：高圧アノードキャップを外す前に、アノード電極の蓄積電荷をテスター等により放電させてから作業を行って下さい。

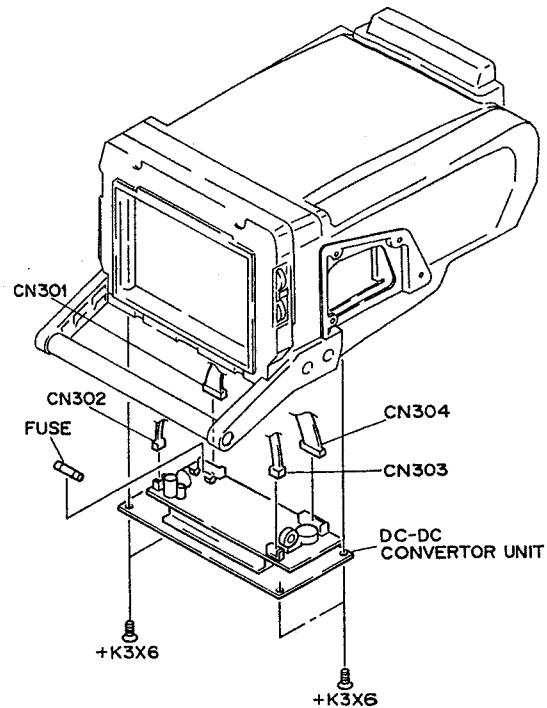


7. 図に示すDEFLECTION YOKE取り付けねじを緩め、DEFLECTION YOKEをCRTより取り外します。
8. CRT および DEFLECTION YOKE を交換し、ステップ 1 から 7 の逆の手順で組み立てます。



3-2-2. FUSE の交換方法

1. 図に示すねじ (+K3×6) 4本を緩めて、DC-DC CONVERTOR UNITを取り外します。
2. PS-269 BOARD のコネクター (CN301、CN302、CN303、CN304) 4個を抜きます。
3. FUSEを取り外し交換します。
4. ステップ1から3の逆の手順で組み立てます。



3-3. サービス上の注意事項

3-3-1. 補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中、△印および■で囲まれた部品は、安全性を維持するために重要な部品です。従ってこれらの部品を交換するときは必ず指定の部品と交換して下さい。

(2) 部品の共通化

ソニーから供給される部品は、セットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。分解図や電気部品表中には現時点での共通化された部品が記載されています。

(3) 部品の在庫

リスト中、SP欄が“S”で示されている部品は常時在庫しています。SP欄が“O”で示されている部品は交換頻度が低い部品ですので、一般には在庫しません。そのため、納期が長くなることがあります。

(4) コンデンサ、インダクター、抵抗の単位

回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。

コンデンサ : μF

インダクター : μH

抵抗 : Ω

3-3-2. 点検および保守上の注意事項

(1) ブラウン管およびそのネック部の調整器の取り扱いの際は十分注意し、ブラウン管に無理な力をかけないようにして下さい。

(2) モニタ動作中の点検は、特に高圧回路および偏向回路の点検は高電圧、高圧パルスが発生している部分がありますので、感電に注意して下さい。また、プリント基板内にも高圧のラインが通っていますので、素手や工具等で触れたりしないよう注意して下さい。

(3) ブラウン管交換または点検のため、ブラウン管に触れる場合は、必ず電源を切ってから高圧アノードキャップを外し、アノード電極の蓄積電荷をテスタリード等により放電させ、危険のないようにしてから作業を行って下さい。

(4) モニタを長時間使用していますと、高圧ユニット、高圧の加わる部品、線材およびブラウン管の表面にほこりやごみが付着しトラブルの原因になりますので、定期的に上記の部分、特にアノードキャップの周囲、高圧整流器等はクリーニングして下さい。

3-3-3. 故障診断

- (1) ビューファインダーの故障を調べる前に、接続しているケーブル、コネクタ等の接触を良く点検し、各入力に規定の信号、電源が供給されているかを調べて下さい。
- (2) 1章取扱い操作に述べられている調整器の位置が悪いと、一見故障と思われる状態になります。
例えば、CONTRASTボリュームやBRIGHTNESSボリュームのツマミが左に回し切った位置にしておくと、画像が出なかったりします。
- (3) 各基板の接続は、コネクタで行っていますので、正しい接觸をしているかどうか点検して下さい。
- (4) 電源安定化回路（PS-269 基板）が動作不良になると、あらゆる回路の動作に影響します。従って、初めに電源電圧を点検して下さい。しかし、各基板の電源回路系が短絡状態、オープン状態にある場合も一見して電源安定化回路が故障と思われる状態になります。

第4章 回路概説

4-1. 映像增幅回路 (VF-48 基板)

CN401コネクターのVIDEO IN端子(3ピン)からの映像信号はCN101の1ピンに入力され、Q1のバッファーを介して映像増幅用と同期分離用に分歧します。

映像増幅用信号は、Q2～Q4のピーリング回路に入力されます。そこで、映像信号はCN107の5ピンからのピーリング・コントロール信号によってピーリング補正されます。

ピーリング・コントロール信号は、外部のピーリング・コントロールつまみ(●RV402)および●RV1/VF-48基板を調整することによって、映像信号のピーリング補正の度合いを変えています。

その後、ピーリング補正された映像信号は、Q5の反転アンプ、Q6のバッファーを通り、IC1の1ピンに入力されます。初段アンプのコントラストコントロール(●RV401)によって、IC1の1ピンに入力された映像信号は、レベルを調整され、次段アンプおよびペデスタル・クランプ回路を通り、8ピンより出力されます。

8ピンより出力された映像信号は、Q7のバッファーを通り、Q8の反転アンプで増幅され、Q9、Q10のドライバーを通り、CRTのカソード電極に供給されます。

4-2. 同期分離、水平発振、垂直発振出力回路 (VF-48 基板)

Q1のエミッターからの映像信号は、IC3のSYNCセパレーターに入力し、負のSYNC及びVD信号が输出されます。SYNC信号は、次のIC4で等価パルスを抜き取られてIC5の11ピンに加わり、波形成形されて水平発振回路へ送られます。

水平発振出力回路では、H同期信号によって水平発振周波数がトリガーされます。水平同期信号は、IC5の12ピンに入力する水平出力信号からの比較パルスとの位相差を検出されます。その出力が水平発振基準電圧をコントロールすることにより、水平同期をとっています。IC5の16ピン出力の水平ドライブパルスはQ15～Q17のアンプで増幅され、Q18、Q19、Q28のゲートに加わります。水平偏向コイルは、Q18、Q19、Q28、C48、C49、L6で構成された水平出力回路からの水平出力信号によって駆動されます。

●RV2(H HOLD)は水平発振周波数を調整します。IC3のVD信号はIC8の8ピンに加わります。そこで垂直発振周波数がトリガーされ、V期間の鋸歯状波を発生します。IC8から出力された垂直出力信号は、その後、垂直偏向コイルを駆動します。

IC8周辺には、以下に示す調整ボリュームがあります。

●RV7(V SIZE)……………垂直画面サイズ調整用

●RV9(V LIN)……………垂直リニアリティ調整用

4-3. 高圧出力回路 (VF-49 基板)

VF-48基板IC5の16ピンからの水平ドライブパルスは、水平偏向コイル駆動用の他に、VF-49基板にも送られ、Q201～Q203のアンプで増幅され、Q204、Q205、Q209のゲートに加わります。Q204、Q205、Q209、C205、C206で構成された高圧出力回路からの高圧出力パルスは、T201のフライバックトランスを駆動します。

T201のフライバックトランスからは、高圧および各中、低圧、ヒーター電圧が输出されます。高圧はCRTのアノード電圧、中圧はスクリーンおよびフォーカス電圧、低圧は映像出力回路およびBRIGHT回路に供給しています。また、フライバックトランスは次項に述べる高圧安定化回路によって出力電圧をコントロールされ、CRTのアノード電圧を一定に保っています。

4-4. 高圧安定化回路 (VF-49 基板)

T201のフライバックトランスからの高圧出力電圧はR219、●RV201、R220で電圧の変動分を検出され、IC201の3ピンに入力します。

3ピン入力信号はIC201内部にてインピーダンス変換されます。その後、IC201-5ピン入力の基準電圧と比較され、その差分を増幅されて7ピンより出力します。7ピン出力信号はQ206、Q207を制御します。

Q206のコレクターからT201のフライバックトランスへ供給される直流電圧をQ207が制御することによってフライバックトランスT201の高圧出力電圧を一定に保っています。●RV201は高圧出力レベル調整用です。

4-5. ブランкиング回路 (VF-48 基板)

ブランкиングパルスはR120、C75にて水平パルス、C76、R121、R122、D12にて垂直パルスを加えることによって得られます。

そのパルスはQ14にて増幅し、R125、C77を経てライトネスコントロール(●RV403)からの電圧を重畳し、CRTの第1グリッドへ供給しています。

4-6. DC-DC コンバーター (PS-269 基板)

IC301は、DC-DCコンバーターです。CN401の7、8ピンからの12V電圧は、L301のフィルターを通った後に、IC301に入力します。IC301では、この+12V電圧を安定化します。その+12V電圧は、VF-48/49、LP-62基板に供給されます。S401のPOWERスイッチは、IC301の電圧変換のON/OFFを切り換えることにより、ビューファインダーへの電源供給のON/OFFを切り換えます。

4-7. タリーランプ回路 (PS-269 基板)

CN401コネクターのR TALLY IN端子(11ピン)からのR TALLY CONT信号はCN301の8ピンを介してQ301のベースに印加されます。

そのR TALLY CONT信号がHIGHレベルのときは、Q301がオンしてR TALLYのLED(D401、D403、D404、D406/LP-62基板)からの電流が流れ、R TALLYのLEDが点灯します。

CN401コネクターのG TALLY IN端子(23ピン)からのG TALLY CONT信号はCN301の7ピンを介してQ302のベースに印加されます。そのG TALLY CONT信号がHIGHレベルのときは、Q302がオンしてG TALLYのLED(D402 D405/LP-62基板)からの電流が流れ、G TALLYのLEDが点灯します。

●RV301、●RV302はそれぞれ、R TALLY、G TALLYのLEDの輝度を調整します。

CN401コネクターのUP TALLY信号(9ピン)は、PS-269基板を介してVF-49基板へ送られ、PL401とPL402のTALLYランプを点灯させます。

4-8. X線保護回路 (VF-48、VF-49 基板)

フライバックトランジスタT201の高圧出力が異常に上昇したとき、X線が規定以上に放射されないよう、D202、R208、R209/VF-49基板、D9、IC5-17ピン/VF-48基板のプロテクター回路が設けられています。VF-49基板のQ204、Q205、Q209で構成されているHVドライバーから出力される高圧ドライブパルスの電圧が通常の電圧範囲以上に上昇した場合、D202、R208、R209/VF-49基板によって整流及び分圧された検出電圧が上昇し、D9/VF-48基板のツェナーダイオードが導通し、VF-48基板のIC5-17ピンに供給され、IC5内部のX線保護回路が動作して16ピンの水平ドライブパルス出力を停止します。そして、フライバックトランジスタの高圧出力をストップさせます。

4-9. ABL回路 (VF-48、VF-49 基板)

CRTを過電流から保護するため、ABL回路が設けられています。

アノード電流をT201/VF-49基板のフライバックトランジスタの10ピンより検出し、Q208/VF-49基板で増幅し、D8/VF-48基板のツェナーダイオードへ印加します。アノード電流が約200 μAを越えるとD8が導通し、Q11/VF-48基板がオンし、IC1/VF-48基板のコントラストコントロール電圧を下げ、コントラスト電圧を下げてアノード電流を抑えます。

第5章 調整要項

5-1. 準備

5-1-1. 使用機器

- 測定器

ACアダプター (Sony : AC-500、または、CMA-8/8A)

高圧メーター

オシロスコープ (300MHz以上)

周波数カウンター

- 関連機器

ビデオ信号発生器 (テクトロニクス 1410型または同等品)

使用ビデオ信号 : ブラックバースト信号

クロスハッチ信号

スイープ信号

モノスコープ信号発生器

(シバソク TP22AX型または同等品)

- 治工具

システム VF 治具 (ソニー部品番号、J-6390-350-A)

5-1-2. 接続

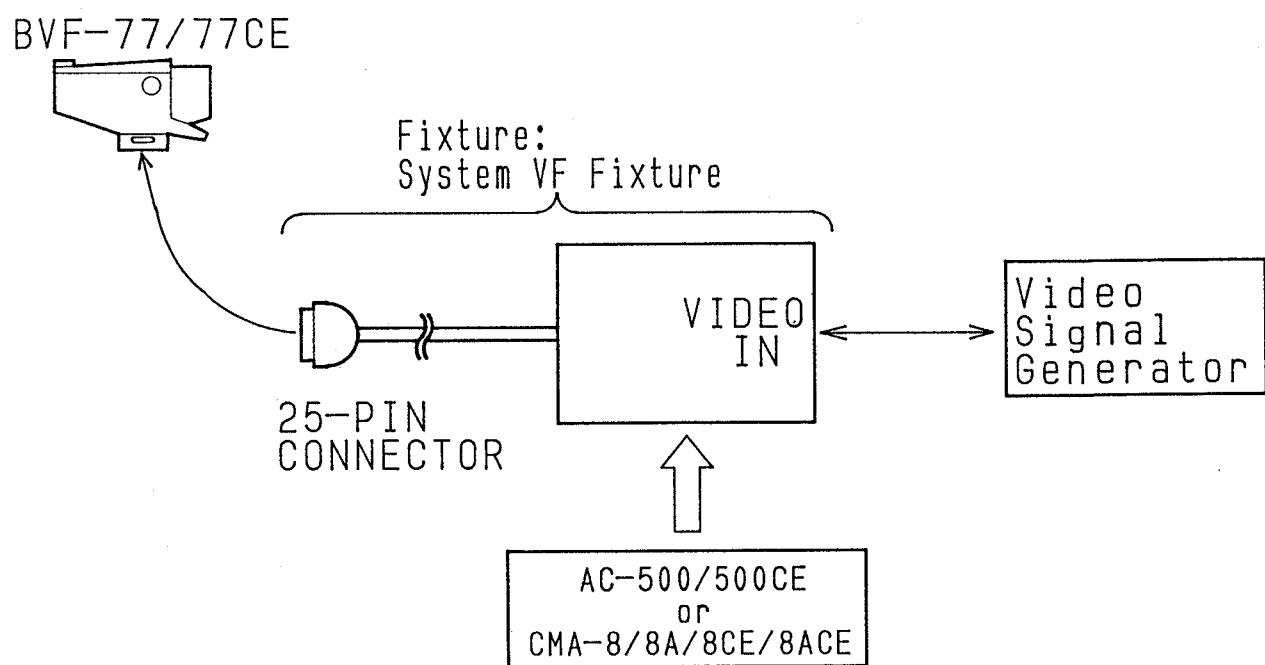
5-1-3. 注意事項

- BVF-77の外枠を取り外して基板が見えるようにしてください。
- 5-2-6. 画面サイズ調整を実行する際には、フードを外す必要がありますので、フードロックつまみをゆるめてからフードを外してください。
- 調整を始める前に、BVF-77のPOWERスイッチをONにして、約10分間ウォーミングアップを行ってください。

5-1-4. 初期セッティング

BVF-77のセッティングを下記のようにしてください。

- BRIGHT つまみ／前面パネル → メカニカルセンター
- CONTRAST つまみ／前面パネル → メカニカルセンター
- PEAKING スイッチ／前面パネル → OFF
- SCAN、SELECT スイッチ／前面パネル → NORMAL



5-2. BVF-77 調整

5-2-1. クランプパルス位相調整

測定器： オシロスコープ

準備： 入力信号→ブラックバースト信号

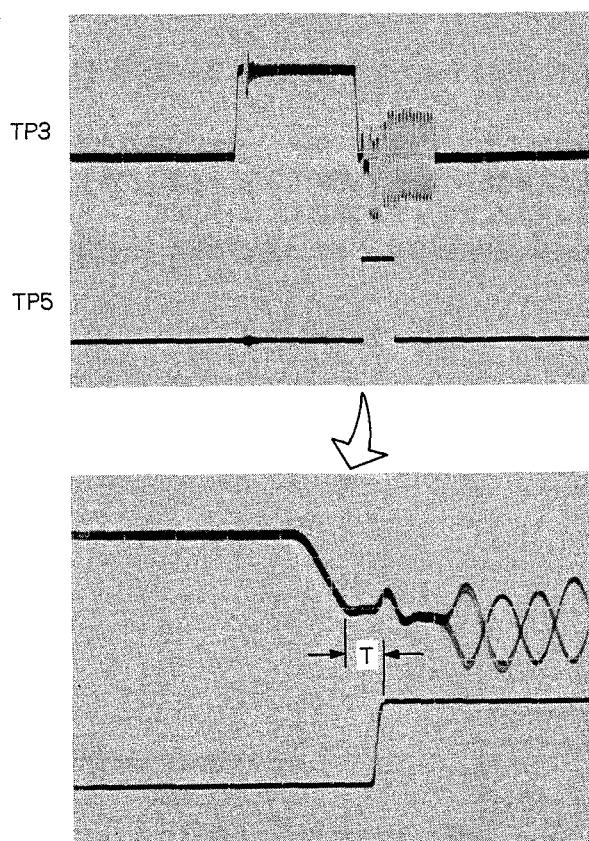
測定点： CH1 : TP3 (GND : シャーシ) / VF-48 基板

CH2 : TP5 (GND : シャーシ) / VF-48 基板

トリガ： TP3 / VF-48 基板

調整箇所： ● RV3 / VF-48 基板

規格： $T = 0.1 \pm 0.1 \mu\text{s}$



5-2-2. H フリーラン周波数調整

準備：

- TP4 / VF-48 基板と TPG / VF-48 基板間をクリップでショートさせます。

測定器： 周波数カウンター

測定点： TP8 (GND : シャーシ) / VF-48 基板

調整箇所： ● RV2 / VF-48 基板

規格： $15.734 \pm 0.1 \text{kHz}$

注意事項：調整終了後、TP4 / VF-48 基板と TPG / VF-48 基板間のショートを解除します。

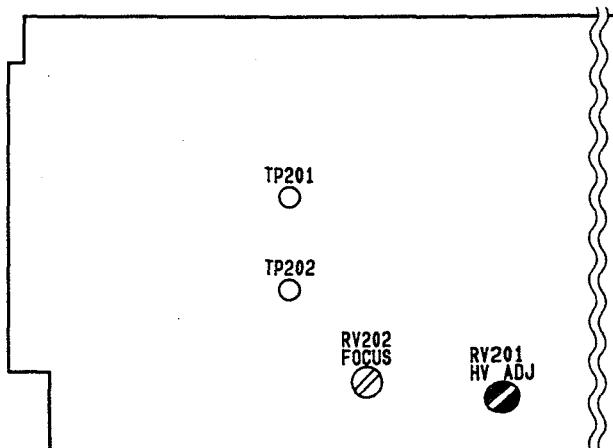
5-2-3. 高圧調整

測定器： 高圧メーター

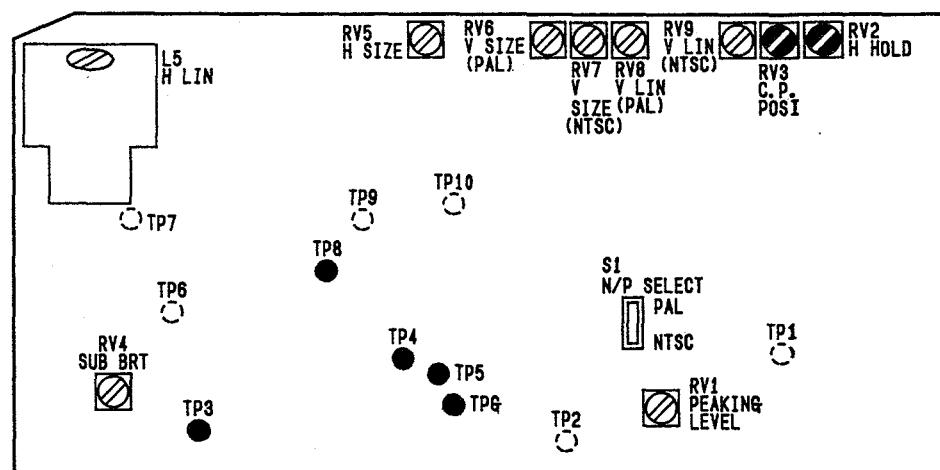
測定点： CRT アノード (GND : シャーシ)

調整箇所： ● RV201 / VF-49 基板

規格： $+ 13.5 \pm 0.05 \text{kVdc}$



VF-49 BOARD (COMPONENT SIDE)



VF-48 BOARD (COMPONENT SIDE)

5-2-4. 偏向ヨーク傾き調整

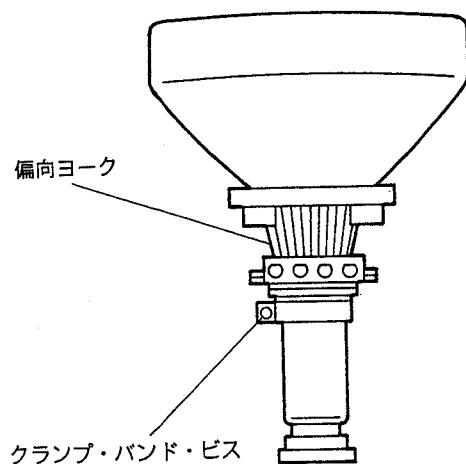
注意事項：CRT交換時以外は調整しないでください。

準備： 入力信号→クロスハッチ信号

測定点： ビューファインダー画面

調整手順

1. VFの画枠に対して画像が傾いている場合、クランプ・バンド・ビスを緩め、偏向ヨークを回して傾きを無くします。
2. クランプ・バンド・ビスを丁寧に締め付けます。
注意：ビスを強く締め付けすぎないようにしてください。
3. クランプ・バンド・ビスをペイントロックします。



5-2-5. センタリング調整

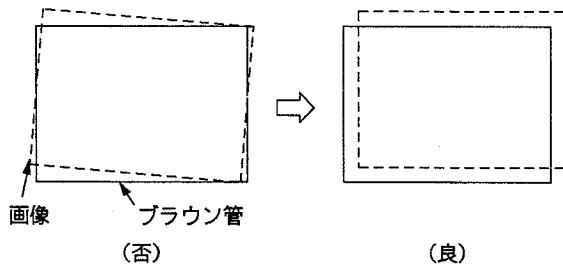
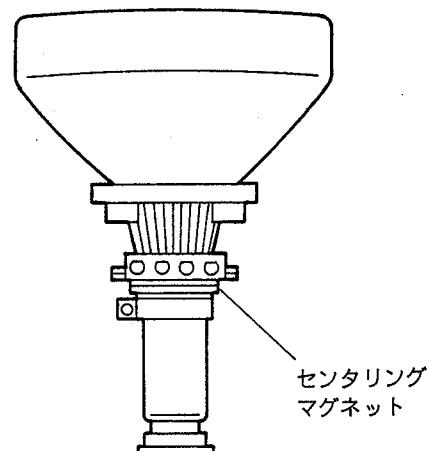
測定器： 波形モニター

準備： 入力信号→モノスコープ信号

測定点： ビューファインダー画面

調整手順

1. 偏向ヨークに付属している2枚のセンタリングマグネットを回転させ、モノスコープ・パターンの中心がビューファインダー画面の中央位置に来るようになります。
2. センタリングマグネットをペイントロックします。



5-2-6. 画面サイズ調整

注意事項：

- ・調整前に、30分以上ウォーミングアップを行ってください。
 - ・この調整と5-2-7. リニアリティ調整は互いに影響し合うので、両方の規格が満足するまで、繰り返し調整を行ってください。

測定器： 波形モニター

準備： 入力信号→クロスハッチ信号

測定点： ビューファインダー画面

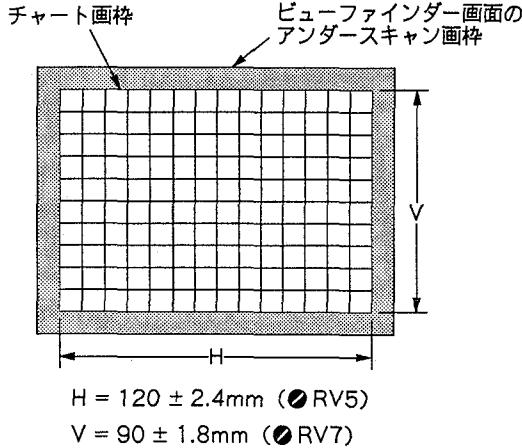
調整箇所：RV5／VF-48 基板

● RV7/VF-48 基板

調整手順

• ピュード

- 下記の規格になるように●RV5、●RV7を調整します。



5-2-7. リニアリティ調整

注意事項：

- ・調整前に、30分以上ウォーミングアップを行ってください。
 - ・この調整と 5-2-6. 画面サイズ調整は互いに影響し合うので両方の規格が満足するまで繰り返し調整を行ってください。

準備： 入力信号→クロスハッチ信号

測定点： ビューファインダー画面

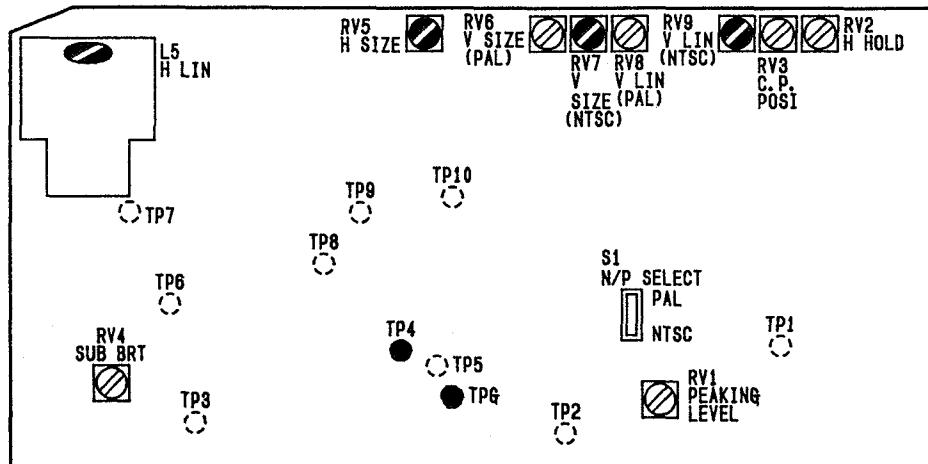
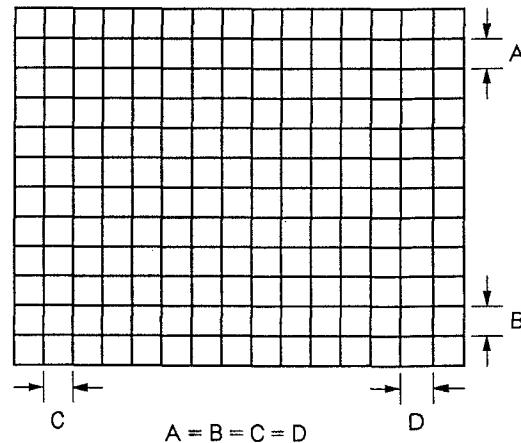
調整箇所：● L5 (H LIN) / VF-48 基板

● RV9 (V LIN) /VF-48 基板

調整手順

- ・ビューファインダー画面において水平方向および垂直方向それぞれの格子間隔が均一になるように❶L5と、❷RV9を交互に調整します。

ピューファインダー画面



VF-48 BOARD (COMPONENT SIDE)

5-2-8. ブライト調整

測定点： ビューファインダー画面
 準備： CONTRAST つまみ／前面パネル
 →反時計方向一杯○
 BRIGHT つまみ／前面パネル
 →反時計方向一杯○より少し戻した位置
 調整箇所： ● RV4／VF-48 基板

調整手順

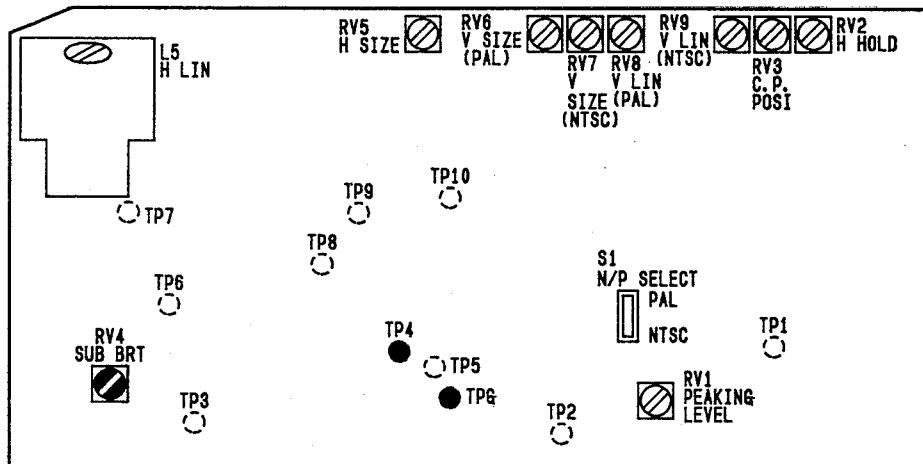
- ビューファインダー画面が消える直後になるように ●RV4 を調整します。

5-2-9. フォーカス調整

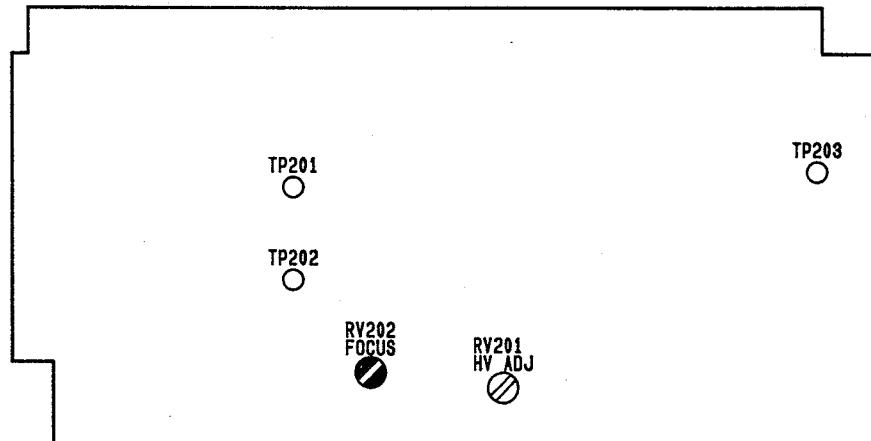
測定器： 波形モニター
 準備：
 • CONTRAST つまみ／前面パネル → 時計方向一杯○
 入力信号 → モノスコープ信号
 測定点： ビューファインダー画面
 調整箇所： ● RV202 (FOCUS) ／VF-49 基板

調整手順

- ビューファインダー画面のフォーカスが最良になるように ●RV202 を調整します。



VF-48 BOARD (COMPONENT SIDE)



VF-49 BOARD (COMPONENT SIDE)

5-2-10. ピーキング調整

準備：

- PEAKINGスイッチ／前面パネル→ON
- PEAKINGつまみ／前面パネル→時計方向一杯○

調整箇所：●RV1／VF-48基板

調整：ビューファインダー画面を見ながら適当なピーキングレベルになるように●RV1を調整します。
(工場出荷時は時計方向一杯○(約+20dB)に調整されています。)

参考までに、ピーキングレベルを+20dBに調整する方法を下記に示します。

入力信号：スイープ信号

準備：

1. BVF-77のPOWERスイッチ →OFF
2. PEAKINGスイッチ／前面パネル →ON
PEAKINGつまみ／前面パネル →時計方向一杯○
3. CRTソケットを抜きPOWERスイッチをONにします。

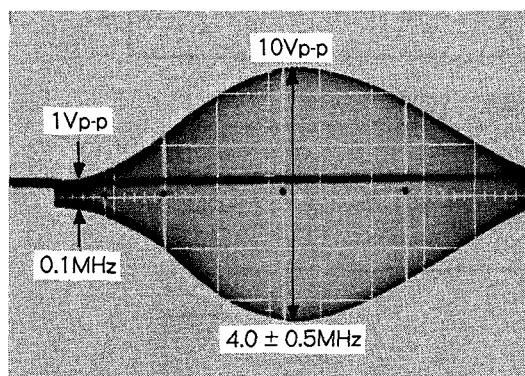
測定器：オシロスコープ

測定点：TP3 (GND:シャーシ) / VF-48基板

調整箇所：●RV1／VF-48基板

調整：

1. CONTRASTつまみ／前面パネルにて0.1MHzのレベルを、1Vp-pに合わせます。
2. $4.0 \pm 0.5\text{MHz}$ のレベルが10Vp-pになるように●RV1を調整します。



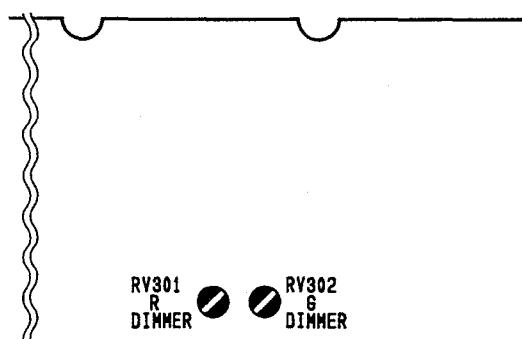
5-2-11. TALLY輝度調整

調整箇所：●RV301、●RV302/PS-269基板

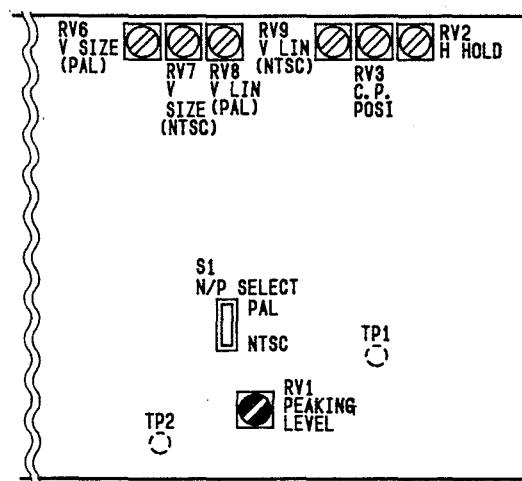
準備：

治具のR TALLYスイッチ、G TALLYスイッチをONにします。

調整：ビューファインダー外部のG TALLYランプおよびR TALLYランプを点灯させたとき、ランプの明るさが、適當な明るさになるように●RV301、●RV302を調整します。(工場出荷時は右一杯○に設定されています。)



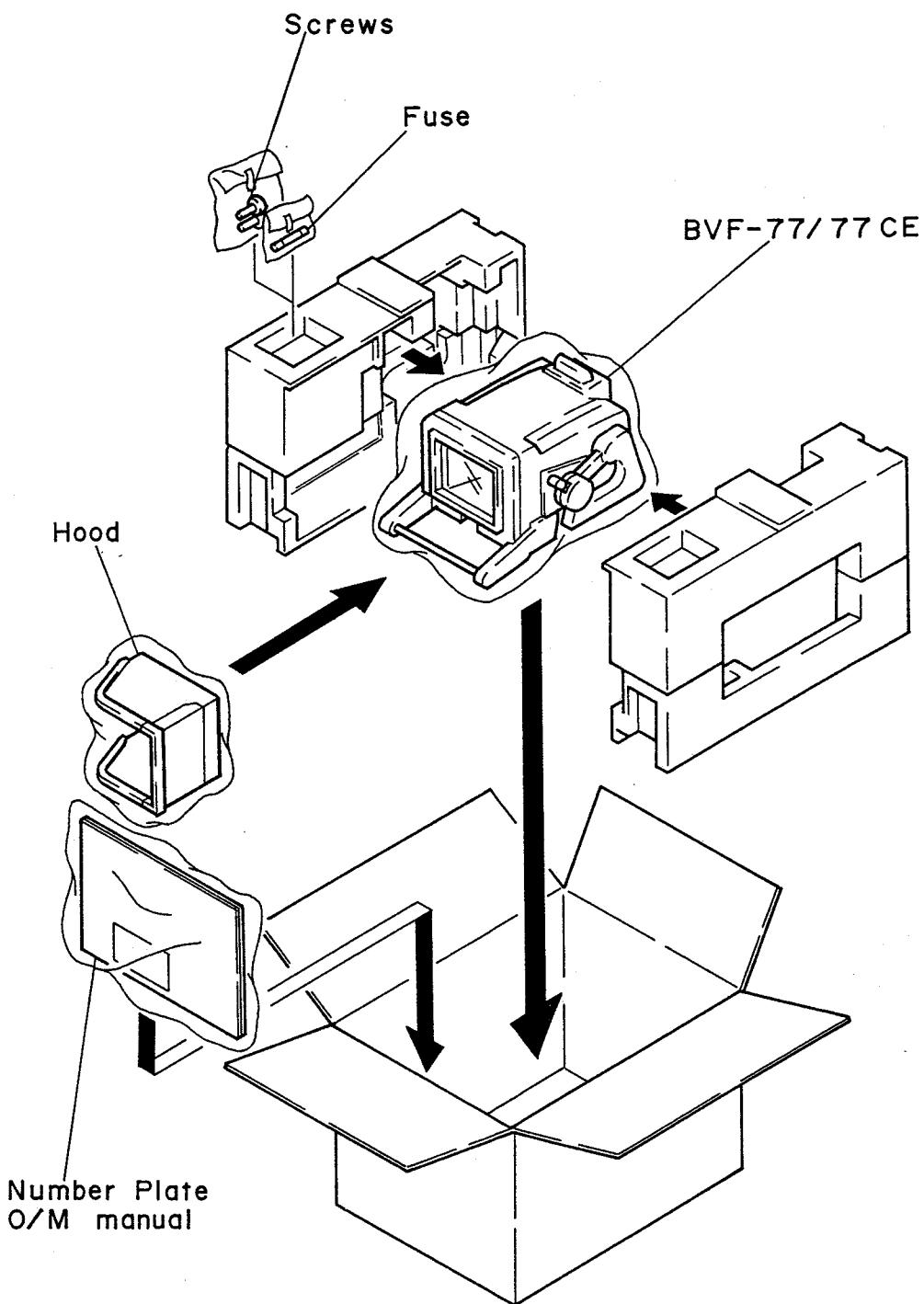
PS-269 BOARD (COMPONENT SIDE)



VF-48 BOARD (COMPONENT SIDE)

SECTION 2 INSTALLATION

2-1. UNPACKING AND REPACKING

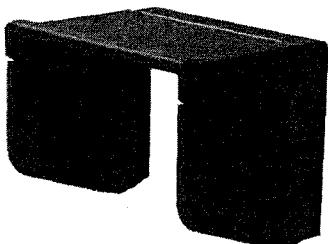


2-2. SUPPLIED ACCESSORY

Indoor Hood Assy: ×1

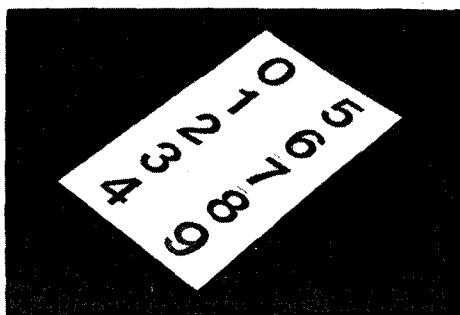
(Sony Part No. X-3166-281-1)

This prevents reflection light such as a fluorescent lamp from hitting the screen.



Number Plate: ×1

(Sony Part No. 4-027-937-01)



Glass Tube Fuse (3.15A 250V): ×1

(Sony Part No. 1-576-133-11)

Spare fuse for F301 on the PS-269 board.

Precision Screws (+P2.6×4): ×2

(Sony Part No. 7-627-556-38)

Used when installing the BVF-77/77CE on the studio camera BVP-370/370P, BVP-270/270P, BVP-360A/360AP, or BVP-360/360P.

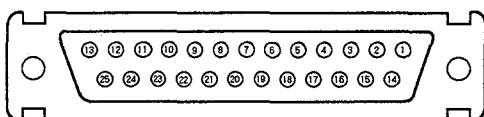
For details, see Section 1 "OPERATION".

Operation and Maintenance Manual: ×1

2-3. CONNECTOR/CABLE

2-3-1. Connector Input/Output Signals

The main connector input/output signals are as follows.



(25P, FEMALE)

| Pin No. | SIGNAL | SPECIFICATION | Pin No. | SIGNAL | SPECIFICATION |
|---------|----------------|---|---------|---------------|---|
| 1 | NC | | 14 | NC | |
| 2 | NC | | 15 | NC | |
| 3 | VIDEO IN (X) | VS = 10Vp-p (100%) Z _i = 75Ω | 16 | VIDEO IN (G) | GND for VIDEO |
| 4 | NC | | 17 | CHASSIS GND | |
| 5 | NC | | 18 | NC | |
| 6 | NC | | 19 | GND | |
| 7 | + 12V IN | + 12Vdc 4A | 20 | GND | |
| 8 | + 12V IN | + 12Vdc 4A | 21 | TALLY GND | GND for TALLY |
| 9 | UP TALLY ON IN | ON : + 12V OFF : High Impedance | 22 | NC | |
| 10 | NC | | 23 | G TALLY ON IN | ON : 2.0 ± 0.5V (Z _R = 300Ω) OFF : 0 + 0.5V |
| 11 | R TALLY ON IN | ON : 2.0 ± 0.5V (Z _R = 300Ω) OFF : 0 + 0.5V | 24 | NC | |
| 12 | NC | | 25 | NC | |
| 13 | NC | | | | |

2-3-2. Applicable Connector

Connection during installation or service, should be made with the connector specified in the following list, or equivalent parts.

| Part No. and name of connector |
|----------------------------------|
| 1-562-989-11 CONNECTOR 25P, MALE |

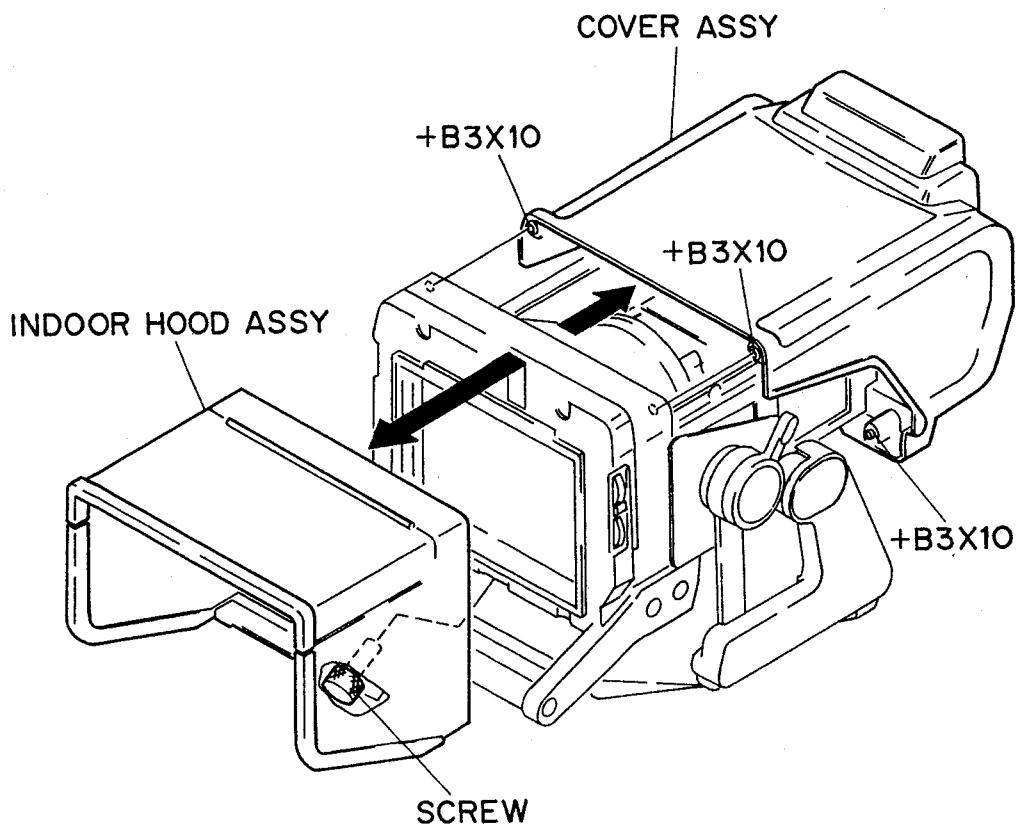
SECTION 3

SERVICE INFORMATION

3-1. REMOVAL OF CABINET

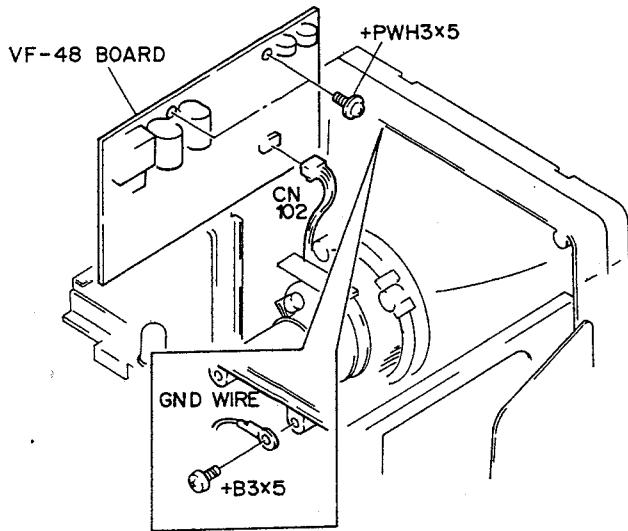
3-1-1. Removal of INDOOR HOOD ASSY and COVER ASSY

1. Loosen the SCREW shown in the figure and Remove the INDOOR HOOD ASSY in the direction of arrow.
2. Loosen the four screws (+B3×10) and remove the COVER ASSY in the direction of arrow.



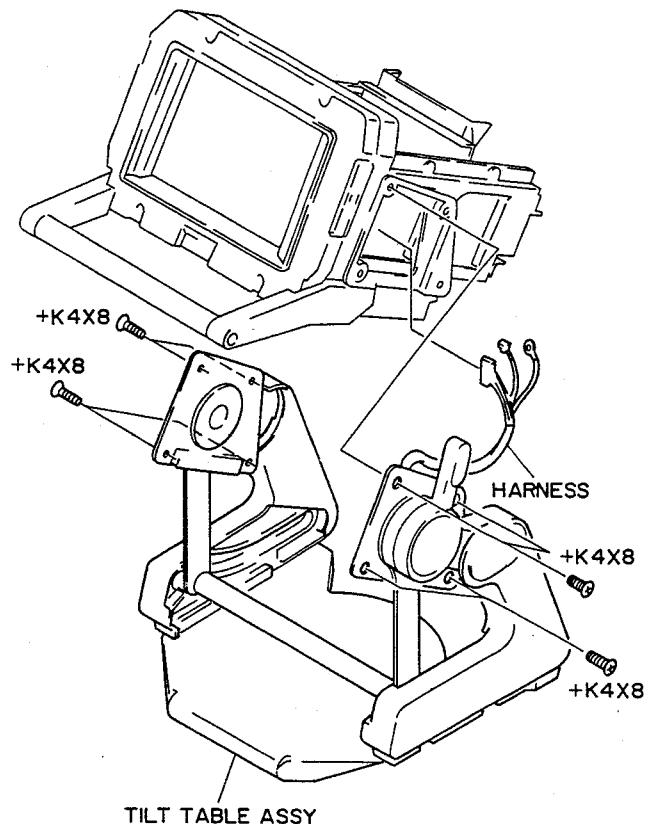
3-1-2. Removal of TILT TABLE ASSY

1. Remove the HOOD ASSY and COVER ASSY carrying out Section 3-1-1.
2. Remove the two screws (+PWH3×5) and draw out the VF-48 board.
3. Disconnect the connector CN102 on the VF-48 board.
4. Remove the screw (+B3×5) fixing the GND WIRE.

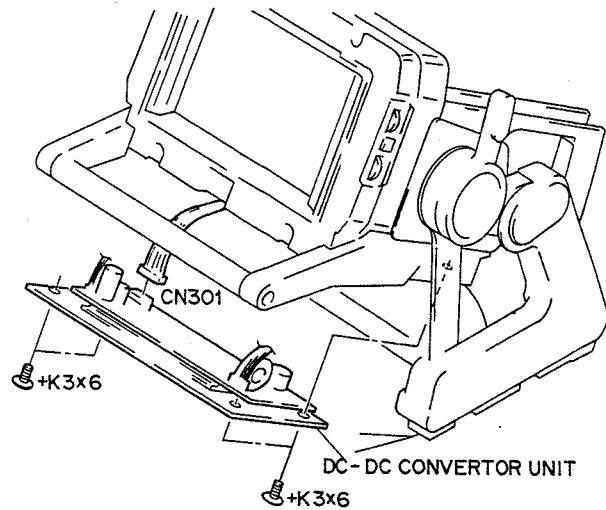


7. Remove the eight screws (+K4×8) and remove the TILT TABLE ASSY.

8. Disconnect the harness from the viewfinder.



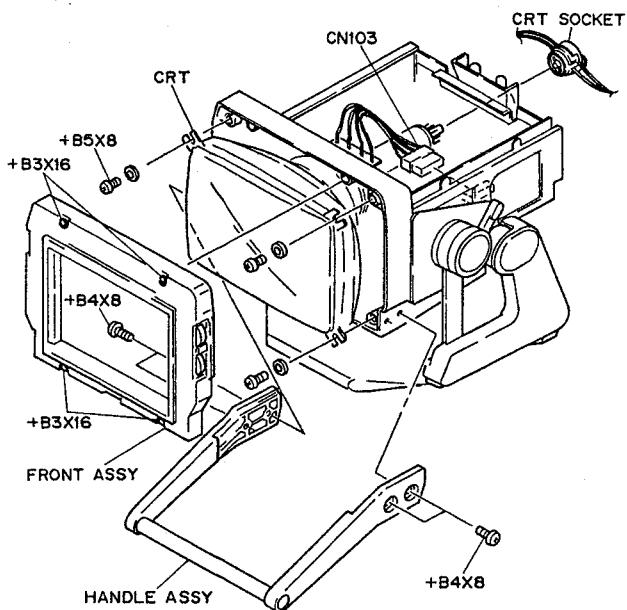
5. Loosen the four screws (+K3×6) and remove the DC-to-DC convertor unit.
6. Disconnect the connector CN301 on the PS-269 board.



3-2. REPLACEMENT OF MAIN PARTS

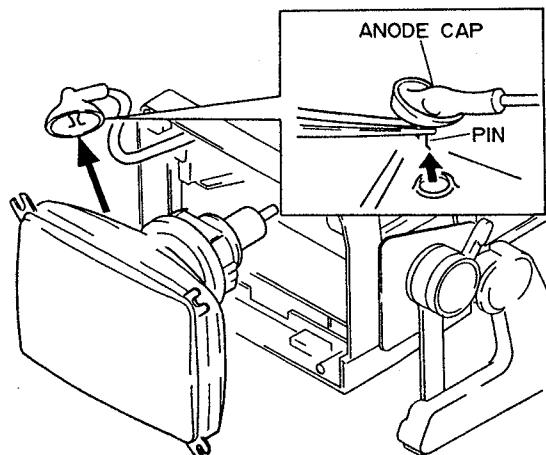
3-2-1. Replacement of CRT and Deflection Yoke

1. Remove the cabinet carrying out Section 3-1-1.
2. Remove the four screws (+B4×8) and remove the HANDLE ASSY.
3. Loosen the four screws (+B3×16) and remove the FRONT ASSY.
4. Disconnect the connector CN103 and the CRT SOCKET.
5. Remove the four screws (+B5×8) and draw out the CRT toward you.

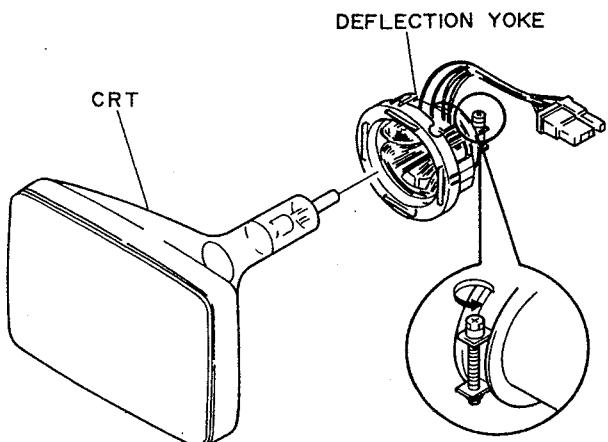


6. Nip the ANODE PIN with tweezers and remove the ANODE CAP.

Note: Discharge the accumulated electricity on the anode to ground using circuit taster lead or other leads before removing the high voltage anode cap.

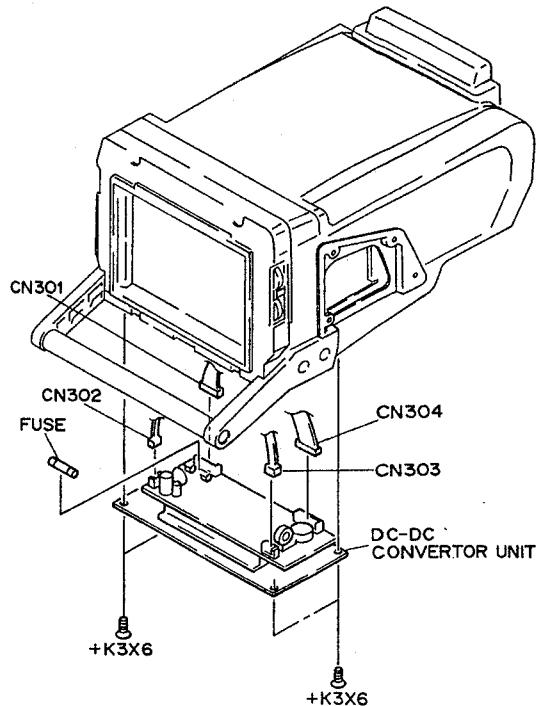


7. Loosen the deflection yoke fixing screw and remove the deflection yoke from the CRT.
8. Replace the CRT or the deflection yoke and assemble by reversing the procedures 1 to 7.



3-2-2. Replacement of Fuse

1. Loosen the four screws (+K3×6) and remove the DC-to-DC convertor unit.
2. Disconnect the four connectors CN301, CN302, CN303 and CN304 on the PS-269 board.
3. Replace a fuse.
4. Assemble with reversing the procedures 1 and 2.



3-3. PRECAUTIONS ON SERVICING

3-3-1. Precaution on Replacement Parts

1. Safety Related Components Warning

Components identified by shading marked and  marked on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony Parts whose part numbers appear as shown in this manual or in Service bulletins and service manual supplement published by Sony.

2. Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the part which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts". This manual's exploded views and electrical spare parts list are indicating the parts number of "the standardization genuine parts at present".

3. Stocked of Parts

The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Order for parts marked with "O" will be processed, but allow for additional delivery time.

4. Units of Capacitors, Inductors, and Resistors

The following units are omitted in the schematic diagrams, exploded views, and electrical parts lists unless otherwise specified;

Capacitor : μF

Inductor : μH

Resistor : Ω

3-3-2. Precaution on Maintenance

1. Handle the CRT body and the controls on the neck of the CRT with utmost care and do not apply excessive force to the CRT.
2. High voltage and high voltage pulse exist on the high voltage and deflection circuits. Take utmost care when checking the unit while it is operating; especially high voltage circuit and deflection circuit. High voltage lines are installed on the printed board. Do not touch the printed board with bare hand or tools.
3. Before touching the CRT for checking purpose or replacing it, cut off the power, remove the high voltage anode cap and discharge the accumulated electricity on the anode to the ground using circuit taster lead, etc. Disconnect the power cord from the AC power source to prevent possible danger caused by accidental turning on the power.
4. Dust or dirt accumulated on the unit may cause unforeseen trouble. Periodically check and clean wiring subjected to high voltage, and CRT face. Clean especially around anode cap and the high voltage rectifier.

3-3-3. Troubleshooting

1. First, check cables, connectors and contacts for loosening and disconnection, and signal input and power supply conditions before servicing the viewfinder.
2. Next, check the position of the controls.
If controls are not set at appropriate position, no picture may appear; for example, if CONTRAST control and BRIGHTNESS control are set at fully counterclockwise position, no picture is produced.
3. Be sure to check if each board is connected by the connectors properly.
4. First, check the power supply voltage. If the regulator circuit (PS-269 board) is in malfunction, other circuits do not work properly. Also, when the power supply on each board is short or open.

3-3-4. VF-48 Board Setting For BVF-77CE

The VF-48 (PD-543) board supplied from the Sony Parts Center (Sony Part No. A-7515-385-A) has been adjusted for NTSC model.

When a new VF-48 board is installed in the BVF-77CE (PAL model), the following switch setting is required.

Frequency selector (N/P SELECT) → PAL position

After installation, perform the following adjustments if necessary. Refer to Section 4 "ALIGNMENT" for details.

- Centering Adjustment
- H Free-running Adjustment
- Screen Size (V) Adjustment
- Linearity (V) Adjustment

SECTION 4

CIRCUIT DESCRIPTION

4-1. VIDEO AMPLIFICATION CIRCUIT (VF-48 BOARD)

The video signal at the VIDEO IN terminal (pin 3) of the connector CN401 is input to the pin 1 of CN101. It branches into the video amplification and the SYNC separation channels via the buffer Q1. The video amplification signal is input to the peaking circuit consisting of Q2 through Q4. The video signal is peak-corrected by the peaking control signal at the pin 5 of CN107. The peaking control signal controls the peaking correction by adjusting the external peaking control knob (● RV402) and ● RV1 on the VF-48 board. Then the peak-corrected video signal is sent through the inverter amplifier Q5 and the buffer Q6 to the pin 1 of IC1. The video signal at the pin 1 of IC1 is adjusted in level by the contrast control (● RV401) at the first amplifier and is then output from pin 8 via the second amplifier and the pedestal clapper. The video signal output from pin 8 goes through the buffer Q7 and is amplified by the inverter amplifier Q8. Then it is supplied through the drivers Q9 and Q10 to the cathode electrode of the CRT.

4-2. SYNC SEPARATION/HORIZONTAL OSCILLATION OUTPUT/VERTICAL OSCILLATION OUTPUT CIRCUIT (VF-48 BOARD)

The SYNC component is separated from the video signal output from the emitter of Q1 by the SYNC separator IC3. IC3 outputs the negative SYNC and VD signal.

The equalizing pulse is eliminated from the SYNC signal using IC4. The resultant is supplied to pin 11 of IC5 and is sent to the horizontal oscillation circuit after forming the wave using IC5.

The horizontal oscillation frequency is triggered by the H SYNC signal in the horizontal oscillation output circuit. Phase difference between the H SYNC signal and a comparison pulse from the horizontal output signal input at pin 12 of IC5 is detected and the resultant output controls the horizontal oscillation reference voltage. As a result, the horizontal synchronization is performed. The horizontal driving pulse output at the pin 16 of IC5 is amplified by the amplifiers Q15 through Q17 and is then added to the gate of Q18, Q19 and Q28. The horizontal output signal at the horizontal output circuit consisting of the Q18, Q19, Q28, C48, C49, and L6 drives the horizontal deflection coil.

● RV2 (H HOLD) adjusts the horizontal oscillation frequency.

The VD signal at the IC3 is added to the pin 8 of IC8, where the vertical oscillation frequency is triggered and the sawtooth waveform of V period is generated. Then the vertical output pulse from the IC8 drives the vertical deflection coil. The following variable resistors are mounted around the IC8.

- RV7 (BVF-77CE: ● RV6).....for vertical screen size adjustment
- RV9 (BVF-77CE: ● RV8).....for vertical linearity adjustment

4-3. HIGH-VOLTAGE OUTPUT CIRCUIT (VF-49 BOARD)

The horizontal driving pulse output from the pin 16 of IC5 on the VF-48 board is sent to the VF-49 board as well as for the horizontal deflection coil drive. It is amplified by the amplifiers Q201 through Q203, and is then added to the gate of the Q204, Q205 and Q209.

The high-voltage output pulse at the high-voltage output circuit consisting of the Q204, Q205, Q209, C205 and C206 drives the flyback transformer T201.

The flyback transformer T201 outputs the high voltage, medium voltage, low voltage and heater voltage respectively. The high voltage is supplied to the anode voltage of the CRT, and the medium voltage is to the screen and the focus voltage and the low voltage is to the video output circuit and the BRIGHT circuit. The output voltage of the flyback transformer is controlled by the high-voltage stabilized circuit described below to maintain the anode voltage of the CRT constantly.

4-4. HIGH-VOLTAGE STABILIZED CIRCUIT (VF-49 BOARD)

The variation of the high-voltage output voltage from the flyback transformer T201 is detected by R219, ● RV201 and R220, and the resultant is input to the pin 3 of IC201. The input signal is impedance-converted inside IC201 and is compared with the reference voltage at the pin 5. The difference is amplified and is output from the pin 7 to control Q206 and Q207.

Q207 controls the DC voltage fed from the collector of Q206 to the flyback transformer T201. Consequently, the constant high-voltage is output.

● RV201 (HV ADJ) adjusts the high-voltage output level.

4-5. BLANKING CIRCUIT (VF-48 BOARD)

The blanking pulse is generated by adding the horizontal pulse at R120 and C75, the vertical pulse at C76, R121, R122 and D12. The pulse is amplified by Q14. And the amplified pulse is superposed on the voltage from the brightness control (● RV403) via the R125 and C77 and is supplied to the first grid of the CRT.

4-6. DC-DC CONVERTER (PS-269 BOARD)

IC301 is DC-DC converter. The +12V voltage from pins 7, 8 of CN401 is added to IC301 via filter L301.

IC301 stabilizes the +12V voltage.

The +12V voltage is supplied to VF-48/49 board and LP-62 board.

S401 power switch turns the power supply to viewfinder ON or OFF by turning the voltage conversion in IC301 ON or OFF.

4-7. TALLY LAMP CIRCUIT (PS-269 BOARD)

The R TALLY CONT signal from the R TALLY IN terminal (pin 11) of CN401 connector is supplied to the base of Q301 via pin 8 of CN301.

When the R TALLY CONT signal is high, the Q301 is turned on and the R TALLY LEDs (D401, D403, D404 and D406/LP-62 board) are lit.

The G TALLY CONT signal from the G TALLY IN terminal (pin 23) of the CN401 connector is supplied to the base of Q302 via the pin 7 of CN301.

When the G TALLY CONT signal is high, the Q302 is turned on and the G TALLY LEDs (D402, D405/LP-62 board) are lit.

● RV301 and ● RV302 control the luminance of the R TALLY LED and the G TALLY LED respectively.

The UP TALLY signal (pin 9) from CN401 connector is fed to the VF-49 board via The PS-269 board to turn on the tally lamps PL401 and PL401.

4-8. X RAY PROTECTION CIRCUIT (VF-48/49 BOARD)

In order to avoid the X ray over-radiation, a protection circuit consisting of D202, R208, R209/VF-49, and D9, pin 17 of IC5/VF-48 is provided when the high voltage output of the flyback transformer T201 rises abnormally.

The detection voltage, which was rectified and voltage-divided by D202, R208, R209/VF-49 board, rises when the voltage of the high-voltage driving pulse from HV driver consisting of the Q204, Q205, Q209/VF-49 rises over ordinary voltage range.

And then the zener diode D9 on the VF-48 board is turned on and the voltage is supplied to the pin 17 of IC5 on the VF-48 board. The X ray protection circuit inside IC5 starts on the operation and stops the horizontal driving pulse output at pin 16. As a result, the high voltage output of the flyback transformer T201 is stopped.

4-9. ABL CIRCUIT (VF-48/49 BOARD)

In order to protect the CRT from the over-current, a ABL circuit is provided.

Anode current is detected from the pin 10 of the flyback transformer T201 on the VF-49 board and is amplified by the Q208 on the VF-49 board.

And then the current is supplied to the zener diode D8 on the VF-48 board. When the current is over 200 μA, D8 conducts and Q11 on the VF-48 board is turned on, and the contrast control voltage inside IC1 on the VF-48 board is suppressed. As a result, the anode current is suppressed with suppressed contrast voltage.

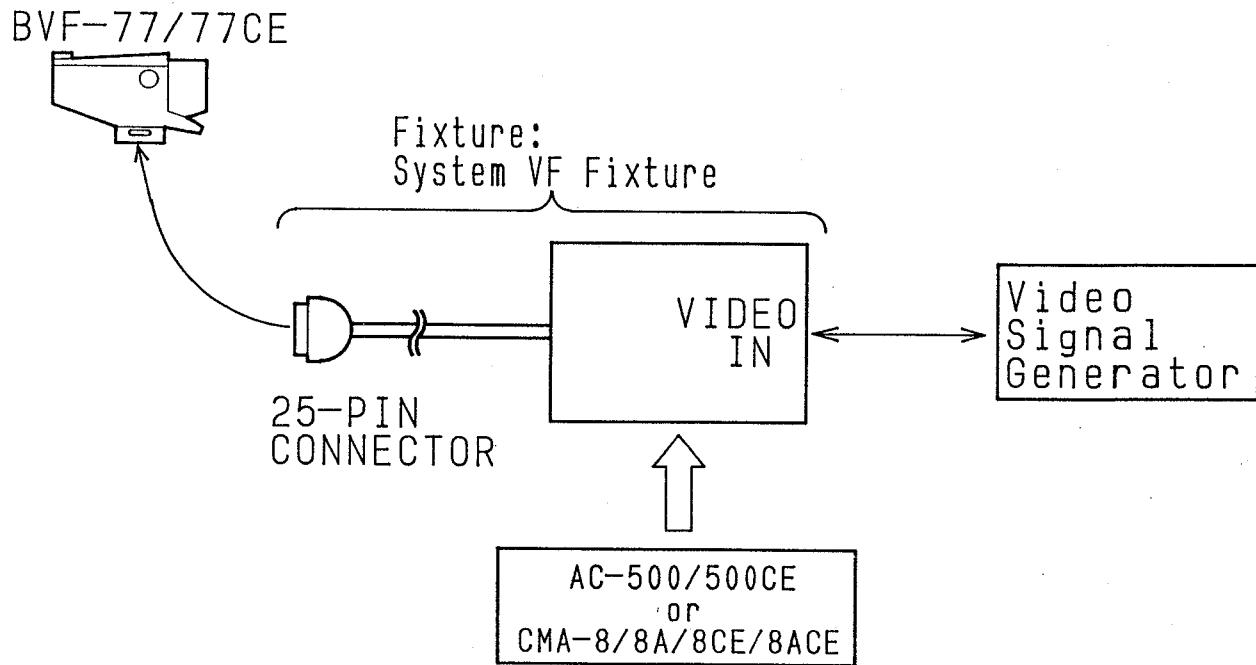
SECTION 5 ALIGNMENT

5-1. PREPARATION

5-1-1. Equipment Required

- Measuring Equipment
 - AC Adaptor (Sony; AC-500/500CE, or CMA-8/8A/8CE/8ACE)
 - High voltage meter
 - Oscilloscope(300 MHz or more)
 - Frequency counter
- Peripheral Equipment
 - Video signal generator (Tektronics 1410/1411 or equivalent)
 - Video signal: Black Burst signal
 - Crosshatch signal
 - Sweep signal
 - Monoscope signal generator (ShibaSoku TP22AX or equivalent)
- Fixture
 - System VF Fixture
 - Sony part number: J-6390-350-A

5-1-2. Connection



5-2. BVF-77/77CE ADJUSTMENT

5-2-1. CLAMP Pulse Phase Adjustment

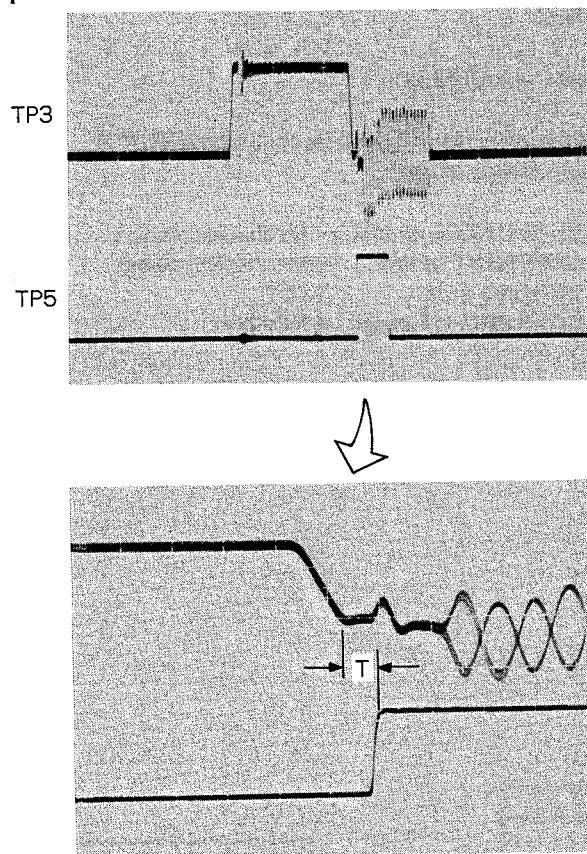
Equipment: Oscilloscope

Preparation: Input signal → Black Burst signal
Test point: CH1: TP3(GND: Chassis)/VF-48
 CH2: TP5(GND: Chassis)/VF-48

Trigger: TP3(GND: Chassis)/VF-48

Adjusting point: \bullet RV3/VF-48

Specification: $T = 0.1 \pm 0.1 \mu\text{s}$



5-2-2. H. OSC. Frequency Adjustment

Preparation:

Short-circuit between TP4/VF-48 and TPG/VF-48 with a clip.

Equipment: Frequency counter

Test point: TP8(GND: chassis)/VF-48

Adjusting point: \bullet RV2/VF-48

Specification: [For BVF-77]

$15.734 \pm 0.1 \text{ kHz}$

[For BVF-77CE]

$15.625 \pm 0.1 \text{ kHz}$

Note: After the adjustment, disconnect the short-circuit between TP4 and TPG.

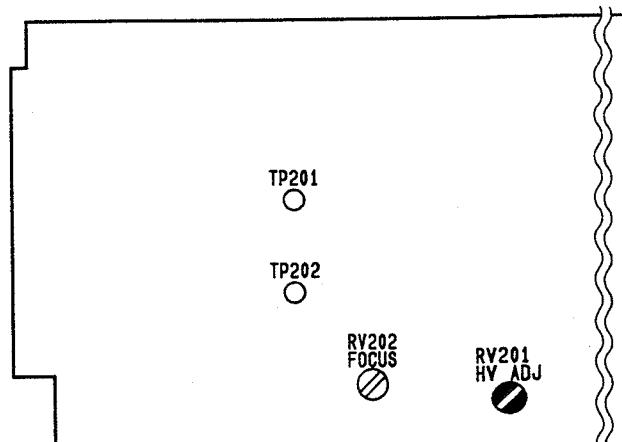
5-2-3. High Voltage Adjustment

Equipment: High voltage meter

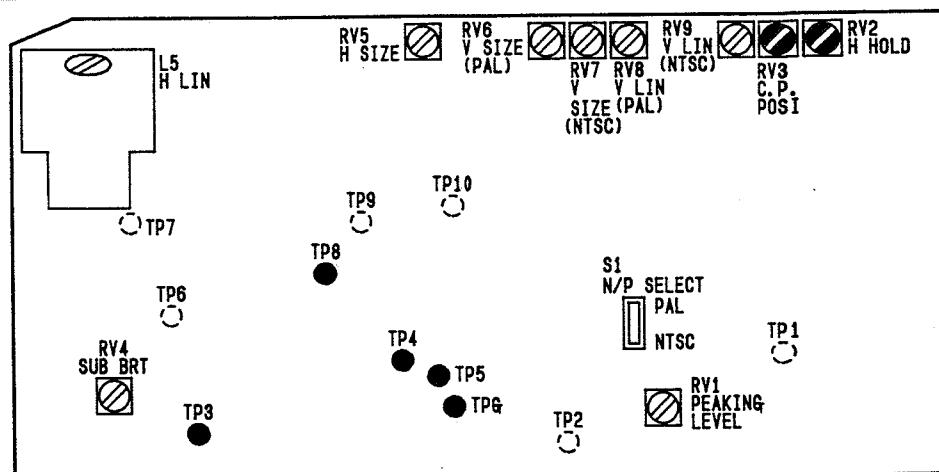
Test point: CRT anode(GND: chassis)

Adjusting point: \bullet RV201/VF-49

Specification: $+13.5 \pm 0.05 \text{ kVdc}$



PS-49 BOARD (COMPONENT SIDE)



VF-48 BOARD (COMPONENT SIDE)

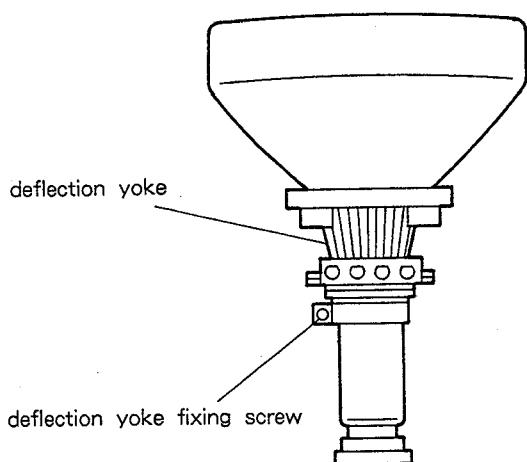
5-2-4. Deflection Yoke Tilt Adjustment

Note: Perform this adjustment only when the CRT is replaced.

Preparation: Input signal → Crosshatch signal
Test point: Viewfinder screen

Adjustment Procedure

1. When the picture frame tilts against the image of viewfinder, loosen the deflection yoke fixing screw and adjust a tilt while turning the deflection yoke.
2. Tighten the fixing screw carefully.
Note: Be sure not to overtighten the fixing screw.
3. Lock the deflection yoke fixing screw with paint.

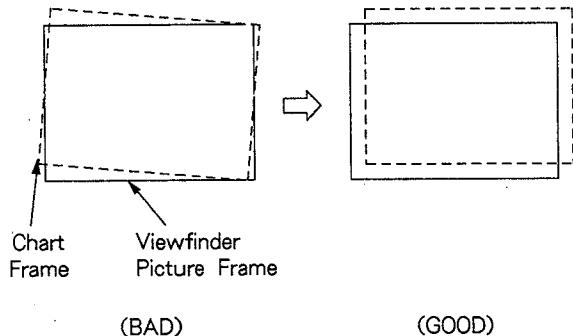
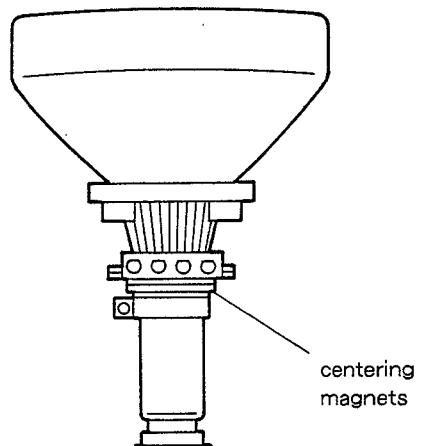


5-2-5. Centering Adjustment

Equipment: Waveform monitor
Preparation: Input signal → Monoscope signal
Test point: Viewfinder screen

Adjustment Procedure

1. Adjust two centering magnets attached to the deflection yoke so that the center of monoscope pattern is centered on the viewfinder screen.
2. Lock the centering magnets with paint.



5-2-6. Screen Size Adjustment

Note:

- Before adjustment, allow for 30 minute warm-up time.
- This adjustment and step 5-2-7 Linearity Adjustment affect each other, so carry out these adjustments alternately several times until the specification for each adjustment is met.

Equipment: Waveform monitor

Preparation: Input signal → Crosshatch signal

Test point: Viewfinder screen

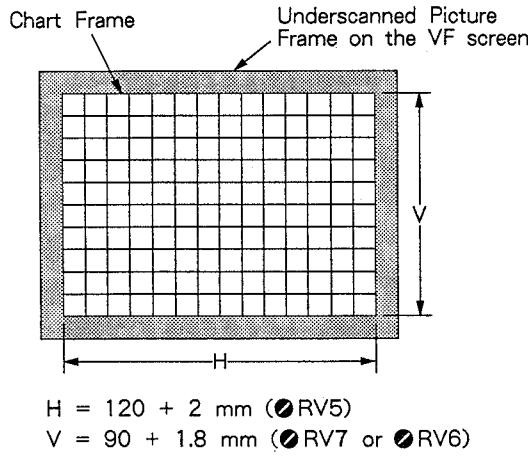
Adjusting point:

[For BVF-77] RV5, RV7/VF-48

[For BVF-77CE] RV5, RV6/VF-48

Adjustment Procedure

- Adjust RV5 and RV7(BVF-77CE: RV6) so that the horizontal size and the vertical size of viewfinder screen meet the following specifications.



5-2-7. Linearity Adjustment

Note:

- Before adjustment, allow for 30 minute warm-up time.
- This adjustment and step 5-2-6 Screen Size Adjustment affect each other, so carry out these adjustments alternately several times until the specification for each adjustment is met.

Equipment: Waveform monitor

Preparation: Input signal → Crosshatch signal

Test point: Viewfinder screen

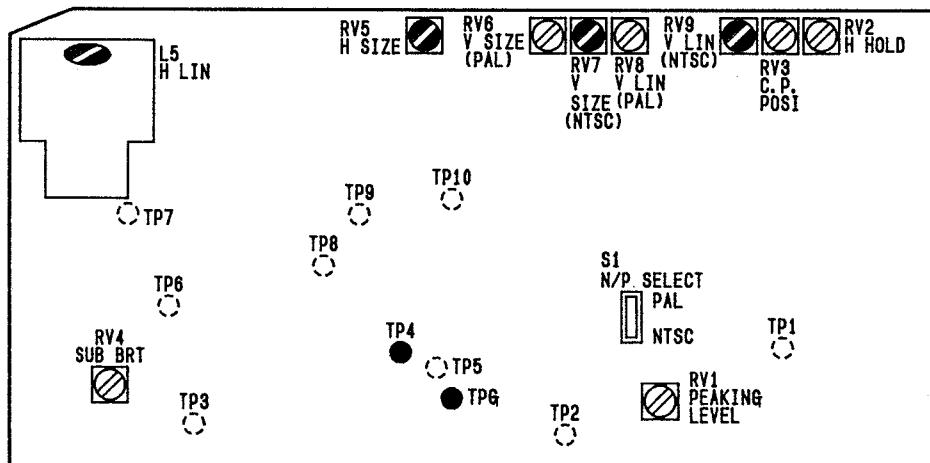
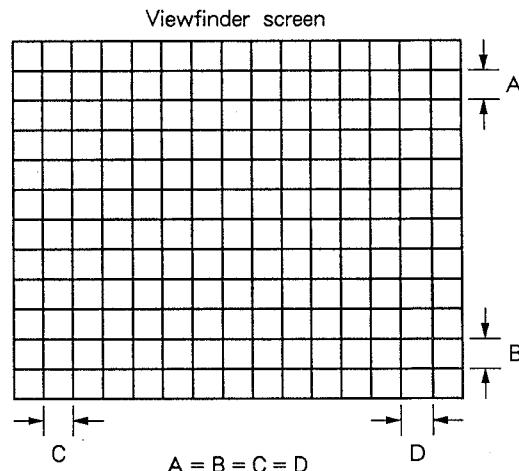
Adjusting point:

[BVF-77] L5, RV9/VF-48

[BVF-77CE] L5, RV8/VF-48

Adjustment Procedure

- Adjust L5 and RV9(BVF-77CE: RV8) alternately so that both horizontal and vertical lattices are at equal interval.



VF-48 BOARD (COMPONENT SIDE)

5-2-8. Brightness Adjustment

Test point: Viewfinder screen

Preparation:

CONTRAST control/front panel

→ Fully counterclockwise

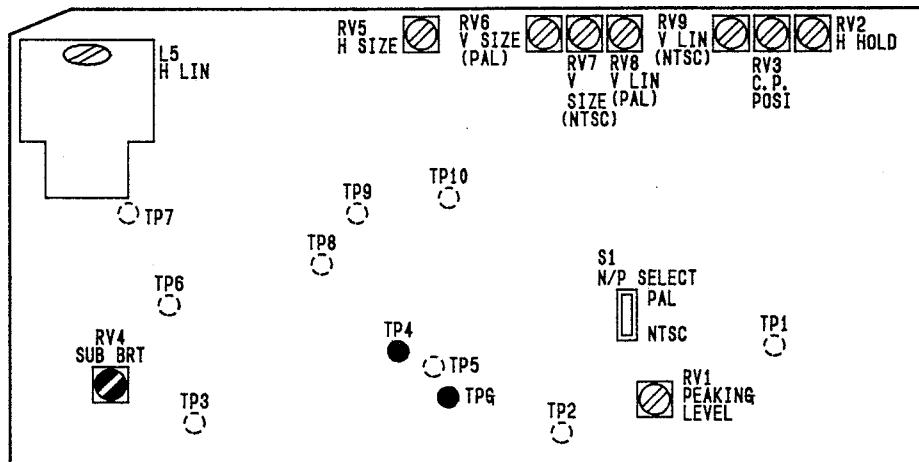
BRIGHTNESS control/front panel

→ Turn fully counterclockwise, then clockwise five degrees.

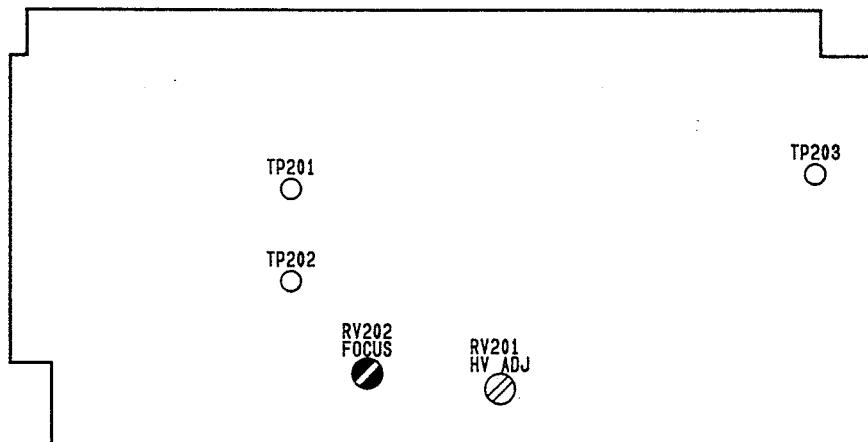
Adjusting point:  RV4/VF-48

Adjustment Procedure

- Adjust  RV4 so that the raster is just cut off.



VF-48 BOARD (COMPONENT SIDE)



VF-49 BOARD (COMPONENT SIDE)

5-2-9. Focus Adjustment

Equipment: Waveform monitor

Preparation:

CONTRAST control/front panel

→ Fully clockwise

Preparation: Input signal → Monoscope signal

Test point: Viewfinder screen

Adjusting point:  RV202 (FOCUS) /VF-49

Adjustment Procedure

- Adjust  RV202 so that the picture on the viewfinder is best focused.

5-2-10. Peaking Adjustment

Preparation:

- PEAKING switch/front panel → ON
- PEAKING control/front panel → Fully clockwise

Adjusting point: \bullet RV1/VF-48

Adjustment:

Observe the viewfinder screen and adjust \bullet RV1 to your preferred peaking level.

(\bullet RV1 is set to fully clockwise (approximately +20 dB) at the factory.)

Method of adjusting the peaking level to +20 dB is shown below for reference.

Input signal: Sweep signal

preparation:

1. POWER switch/front panel → OFF
2. PEAKING switch/front panel → OFF
PEAKING control/front panel → Fully clockwise
3. Remove the CRT socket and turn the POWER switch on the front panel to ON.

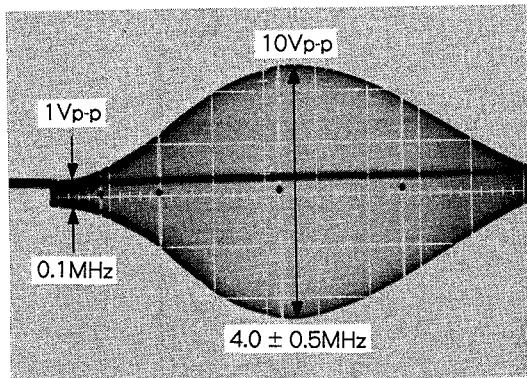
Equipment: Oscilloscope

Test point: TP3(GND: Chassis)/VF-48

Adjusting point: \bullet RV1/VF-48

Adjustment Procedure

1. Adjust the CONTRAST control on the front panel so that the level at 0.1 MHz is 1Vp-p.
2. Adjust \bullet RV1 so that the level at 4.0 ± 0.5 MHz is 10Vp-p.



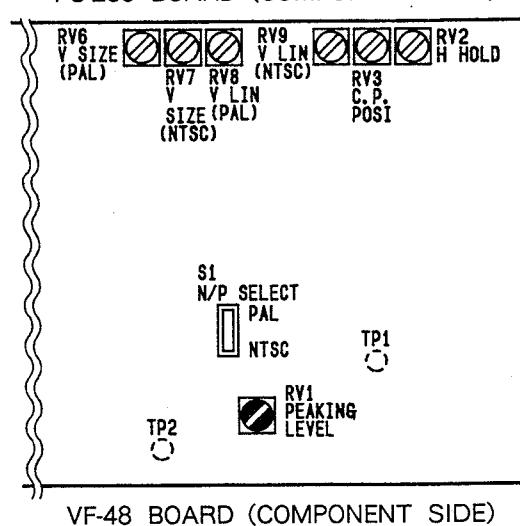
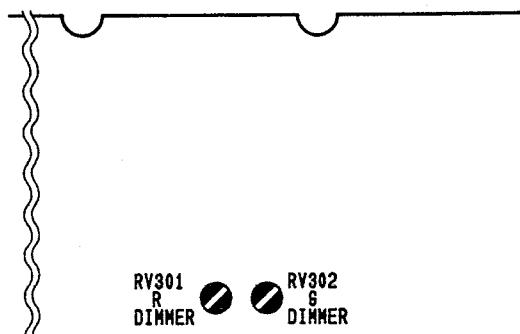
5-2-11. TALLY Dimmer Adjustment

Adjusting point: \bullet RV301, \bullet RV302/PS-269

Adjustment:

Adjust \bullet RV301, \bullet RV302 to your preferred lamp brightness when G TALLY lamp and R TALLY lamp on the viewfinder are lit up.

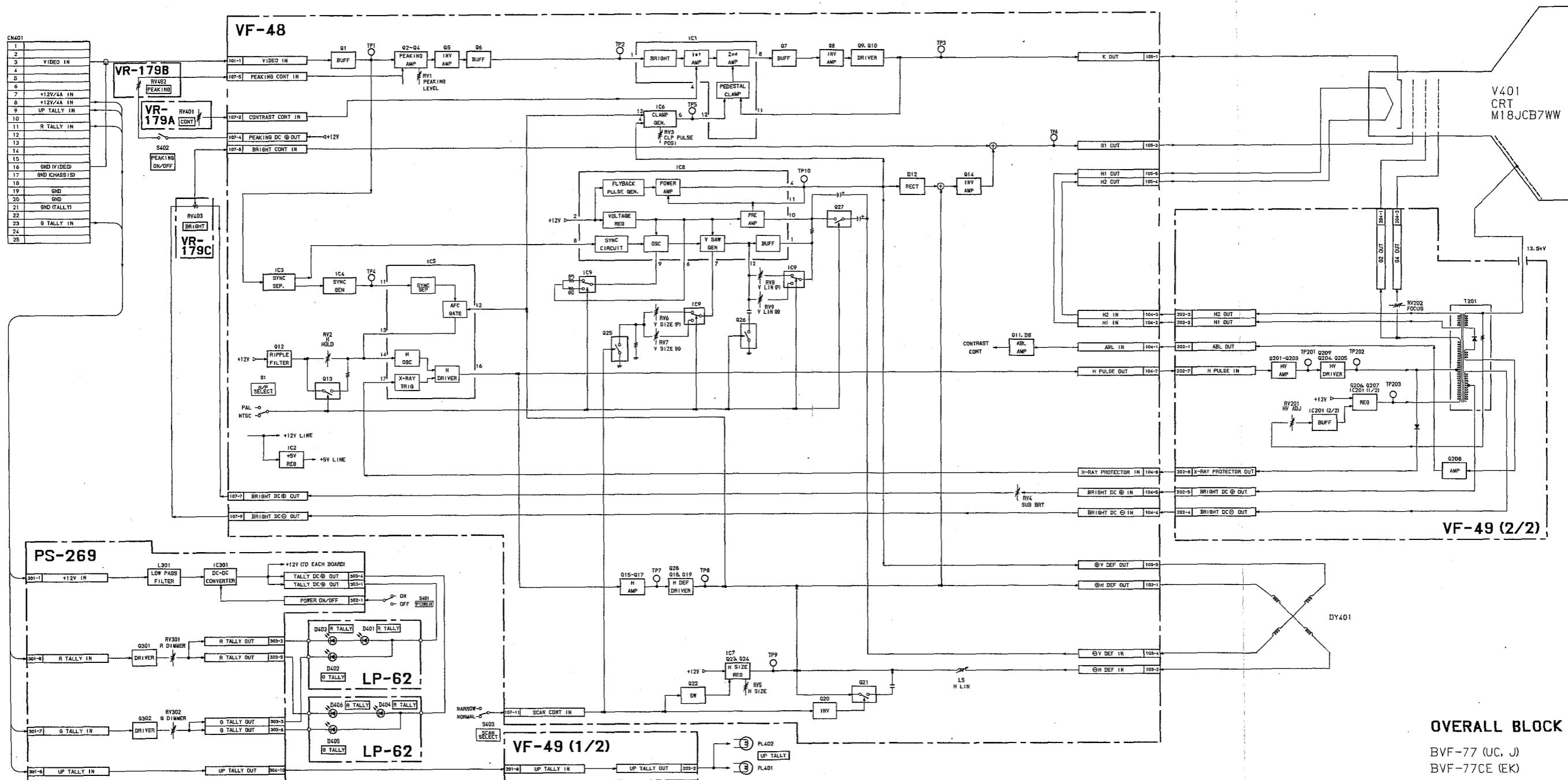
(\bullet RV301 and \bullet RV302 are set to fully clockwise at the factory.)



SECTION A

BLOCK DIAGRAM

OVERALL BLOCK



OVERALL BLOCK

BVF-77 (UC, J)
BVF-77CE (EK)

BVF-77 (J, UC)
BVF-77CE (EK)
B-BVF77-OABLOCK/M

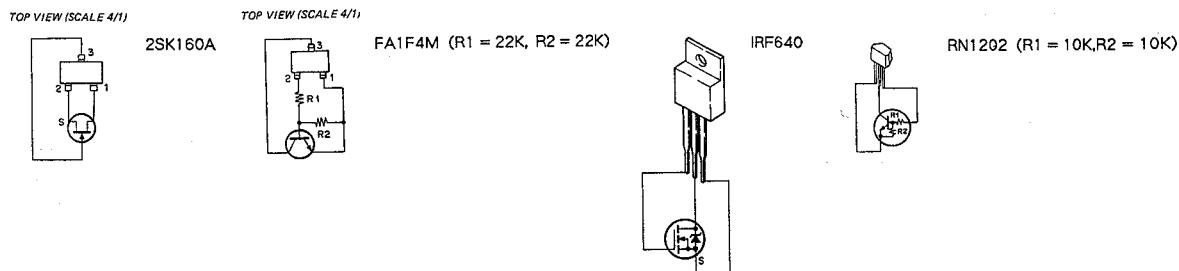
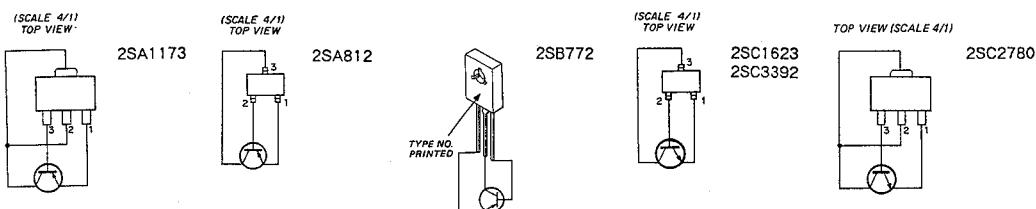
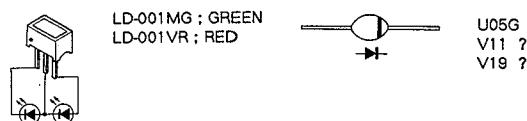
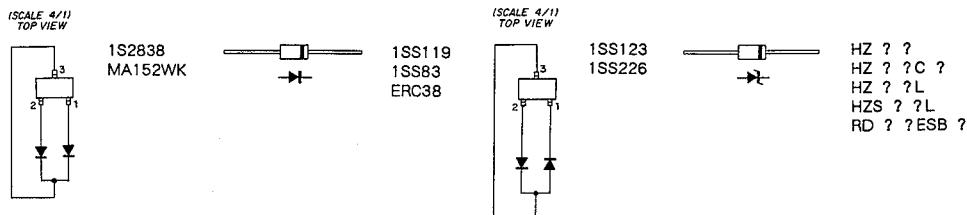
A-1

B

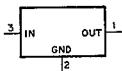
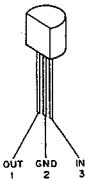
6

SECTION B SEMICONDUCTOR

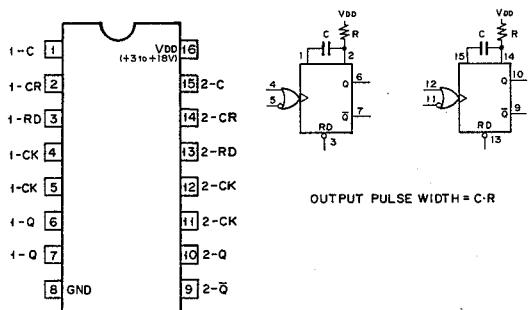
The circuit diagram of IC is obtained from the IC data book published by the manufacturer.



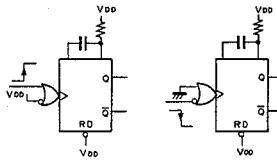
RC78L05A (RAYTHEON) + 5V
 TA78L005AP (TOSHIBA) + 5V
 POSITIVE VOLTAGE REGULATOR (100mA)



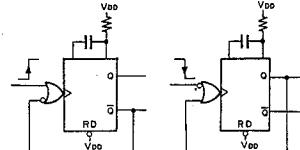
TC4538BF (TOSHIBA) FLAT PACKAGE
 C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
 - TOP VIEW -



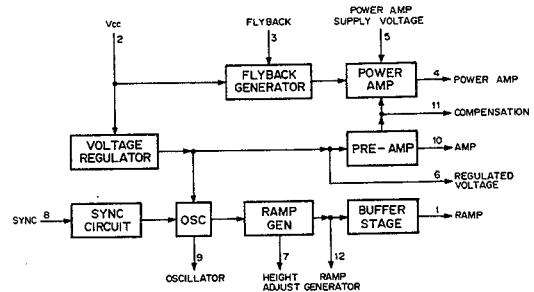
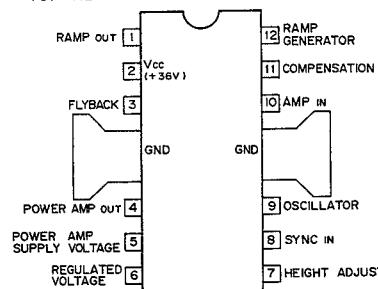
RETRIGGERABLE M.M.V



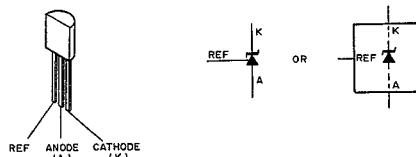
NON - RETRIGGERABLE M.M.V



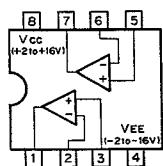
TDA1170N (SGS)
 LOW NOISE TV VERTICAL DEFLECTION SYSTEM
 - TOP VIEW -



UPC1093J (NEC)
 ADJUSTABLE PRECISION SHUNT REGULATOR

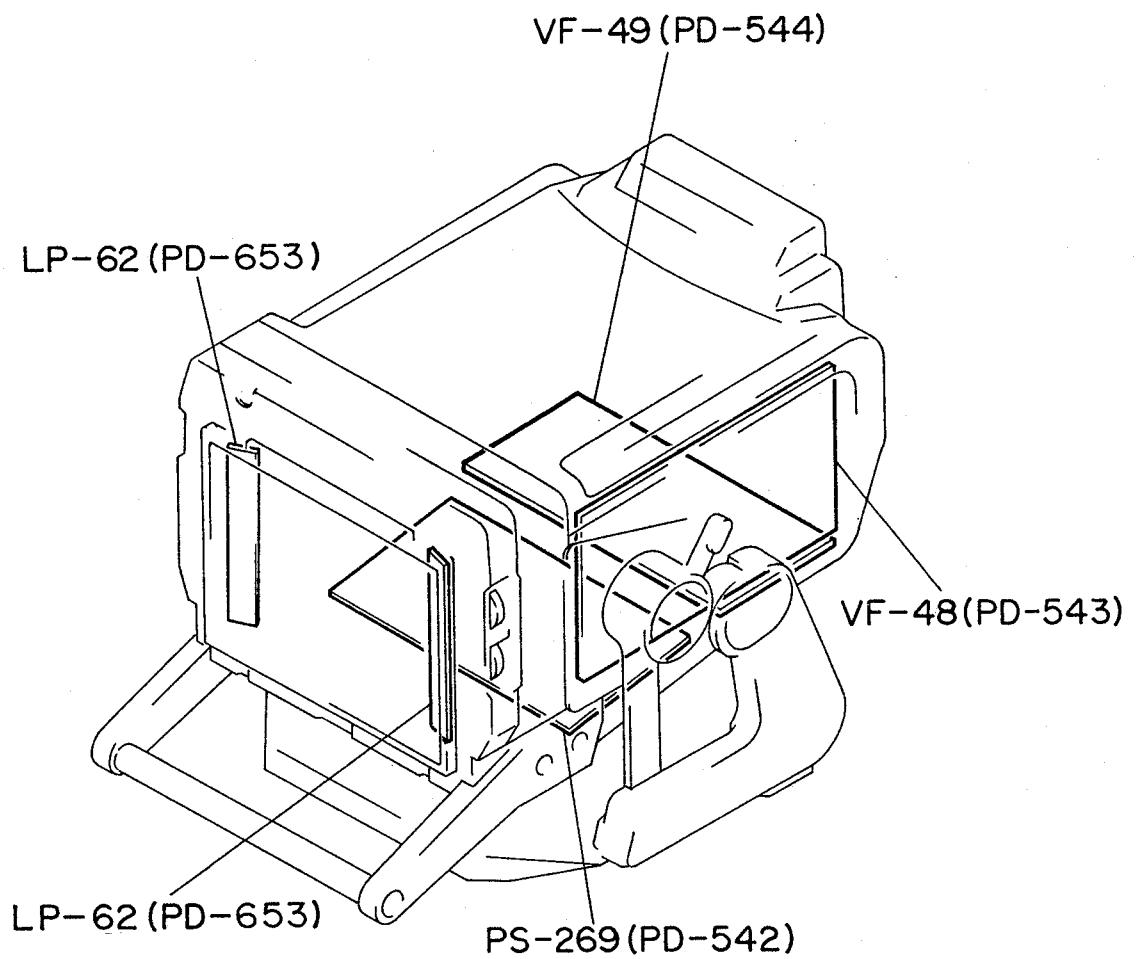


UPC4062G2 (NEC) FLAT PACKAGE
 TTL-DUAL OPERATIONAL AMPLIFIER
 WITH LOW POWER CONSUMPTION
 - TOP VIEW -



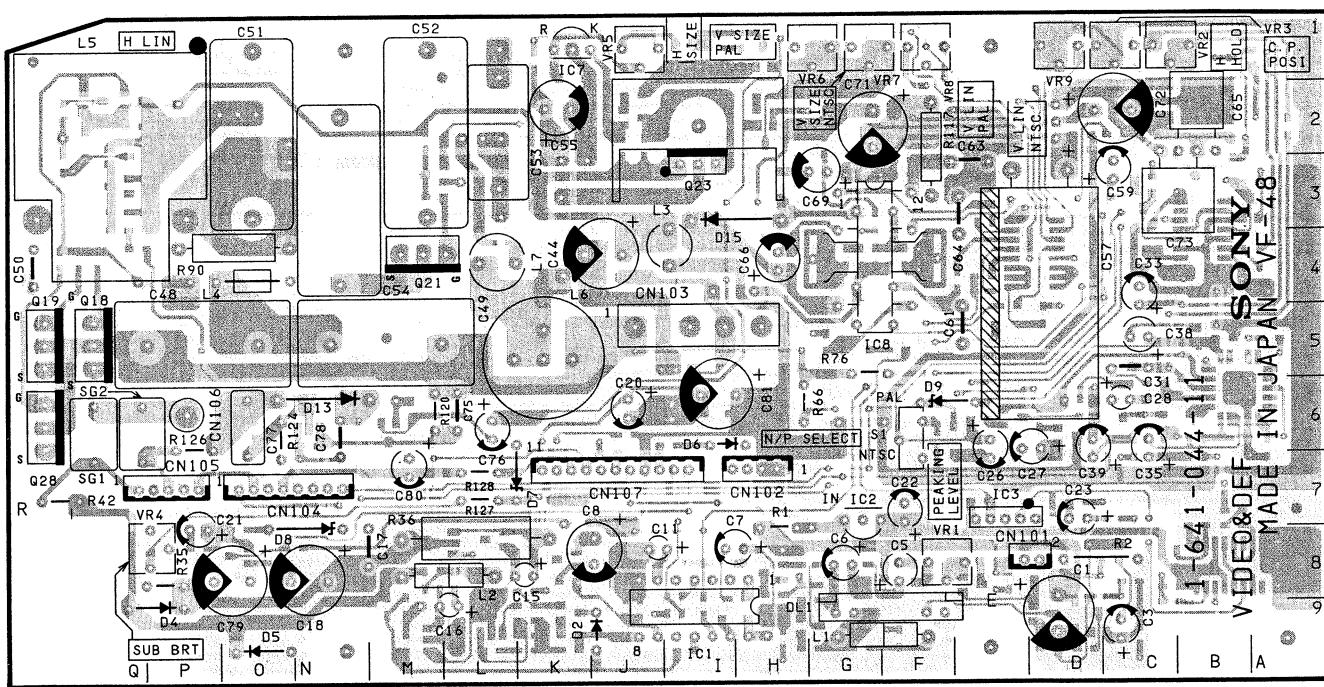
SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATION

BOARD LAYOUT



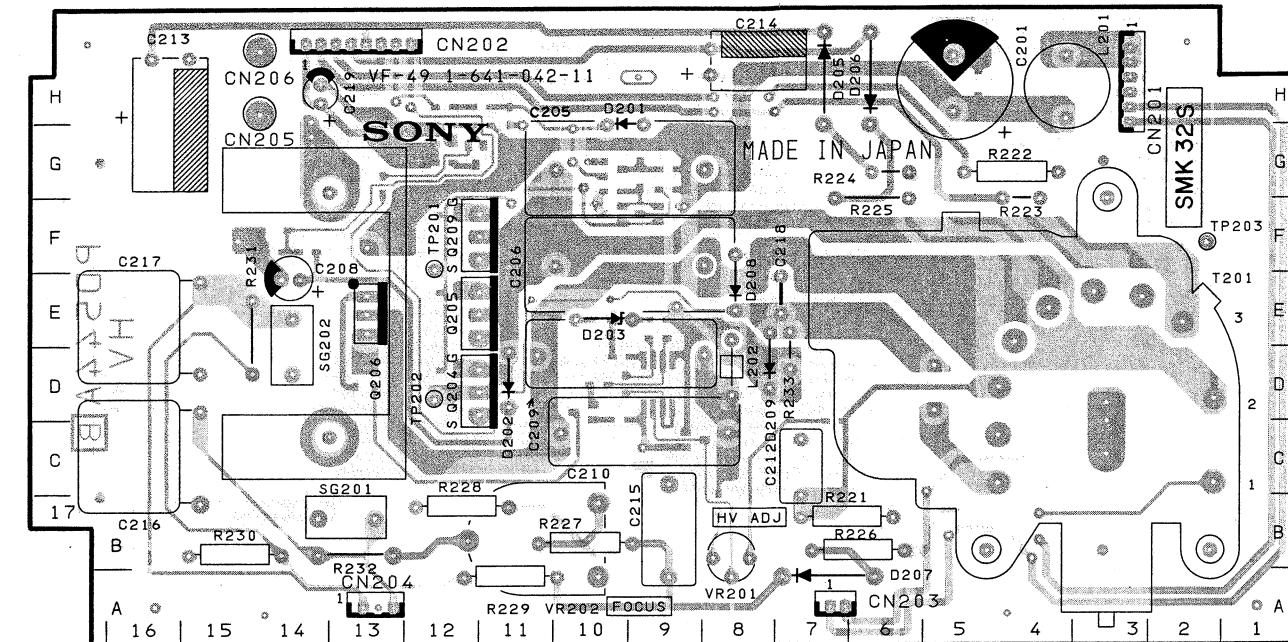
Serial No. 10001 to 10040 (UC)
30001 to 30030 (J)
40001 to 40080 (EK)

VF-48 BOARD

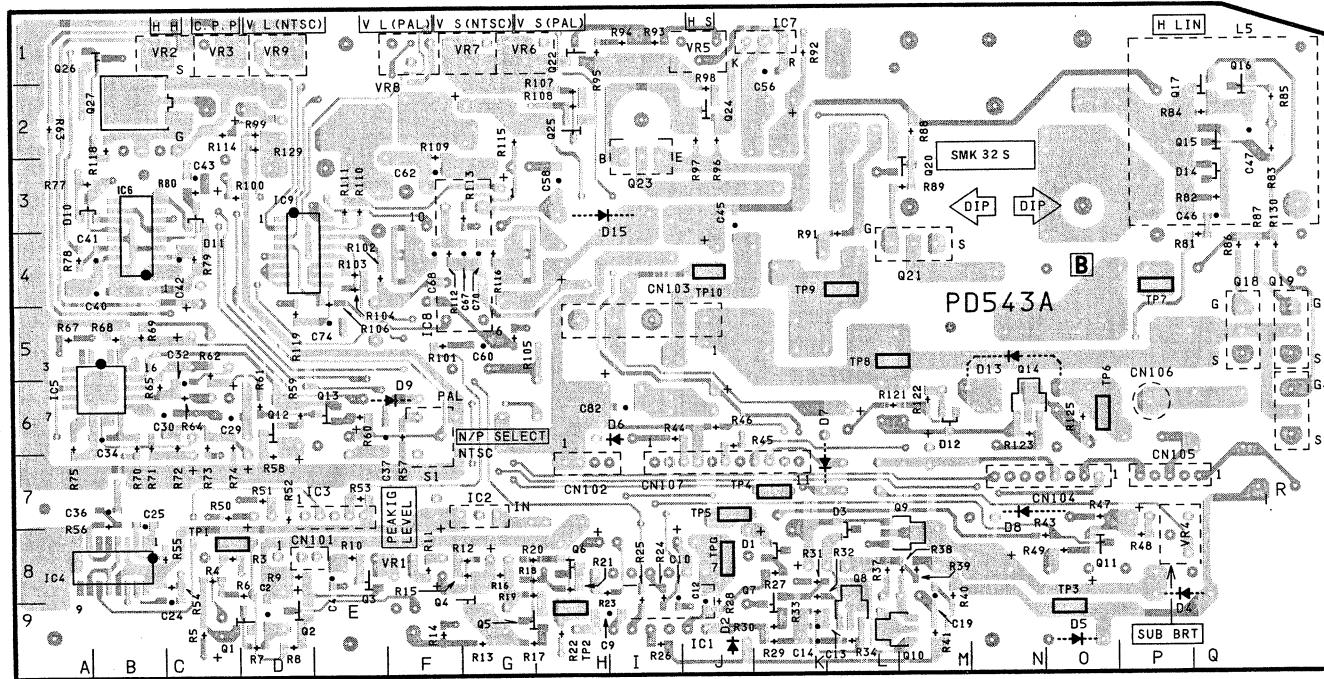


1-641-044-11 COMPONENT SIDE

VF-49 BOARD

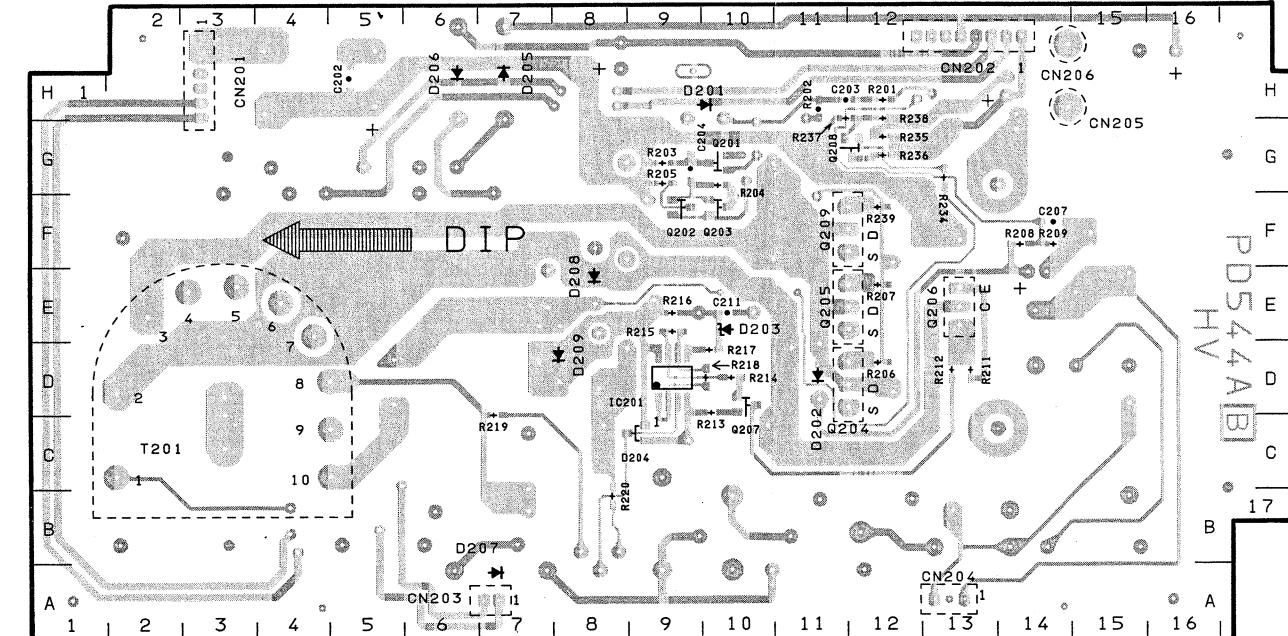


1-641-042-11 COMPONENT SIDE



1-641-044-11 SOLDERING SIDE

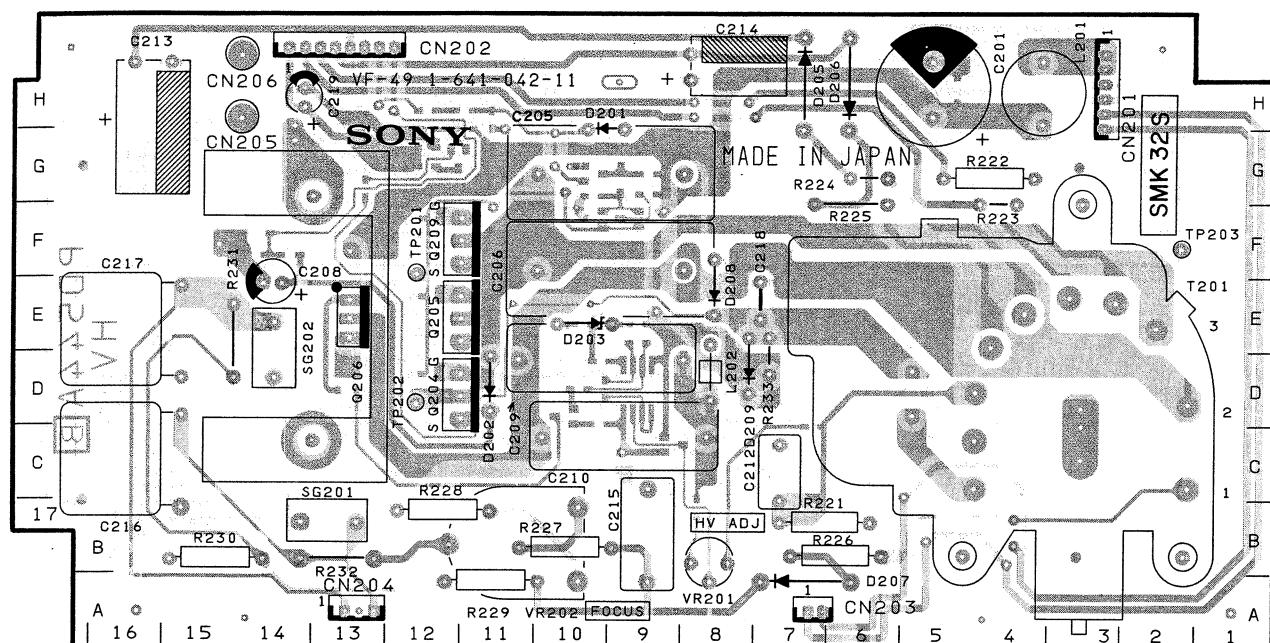
C-4 (a)



1-641-042-11 SOLDERING SIDE

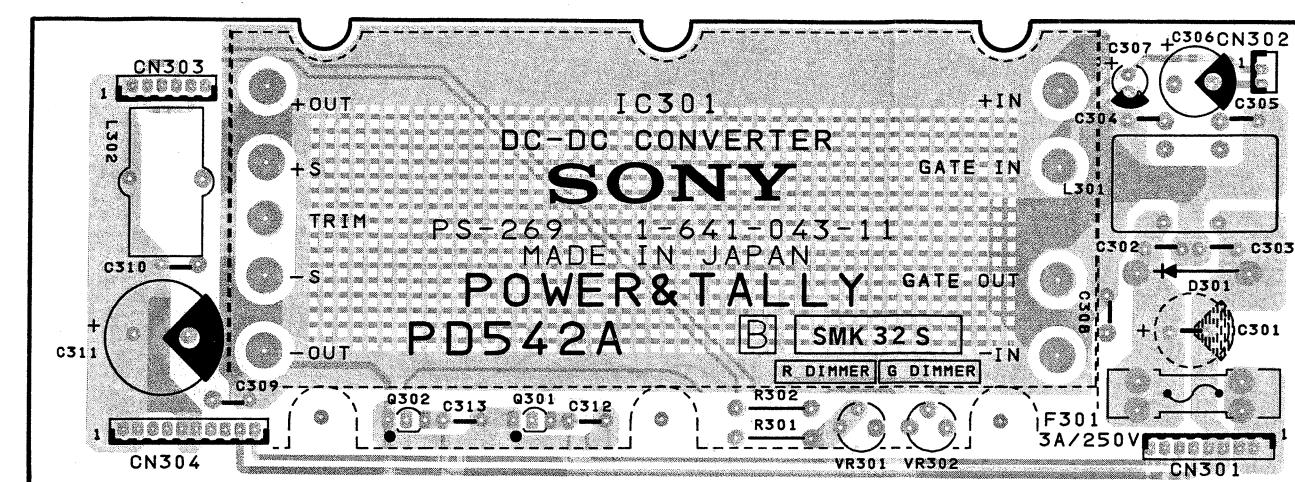
C-5 (a)

VF-49 BOARD

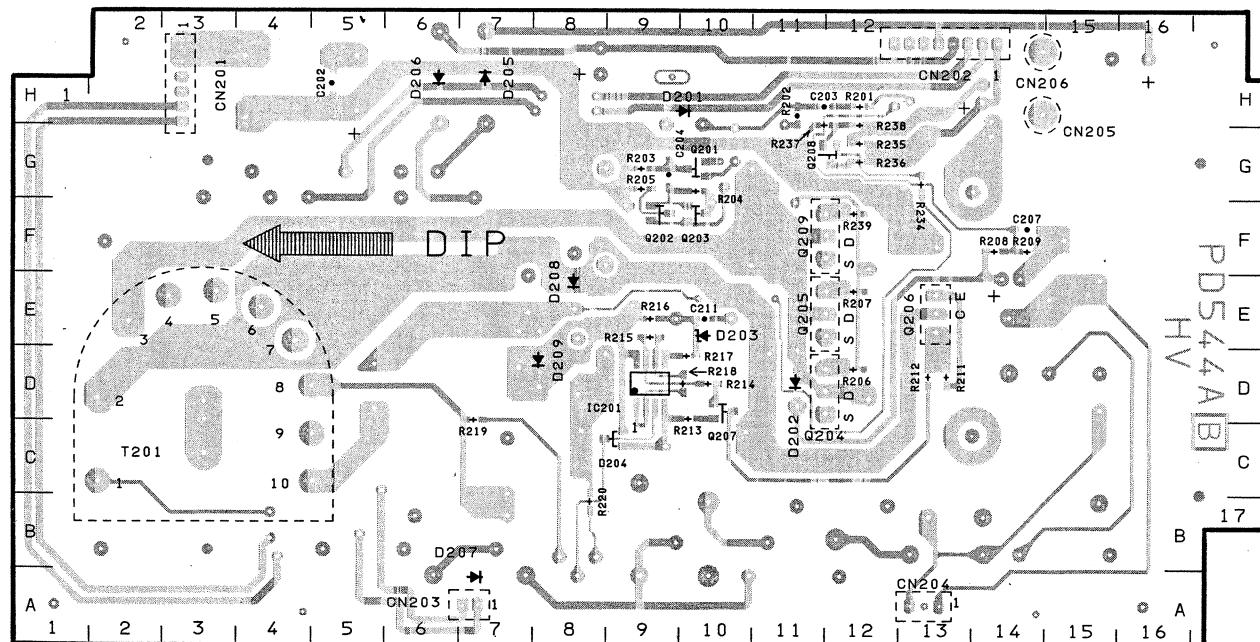


1-641-042-11 COMPONENT SIDE

PS-269 BOARD



1-641-043-11 COMPONENT SIDE



1-641-042-11 SOLDERING SIDE

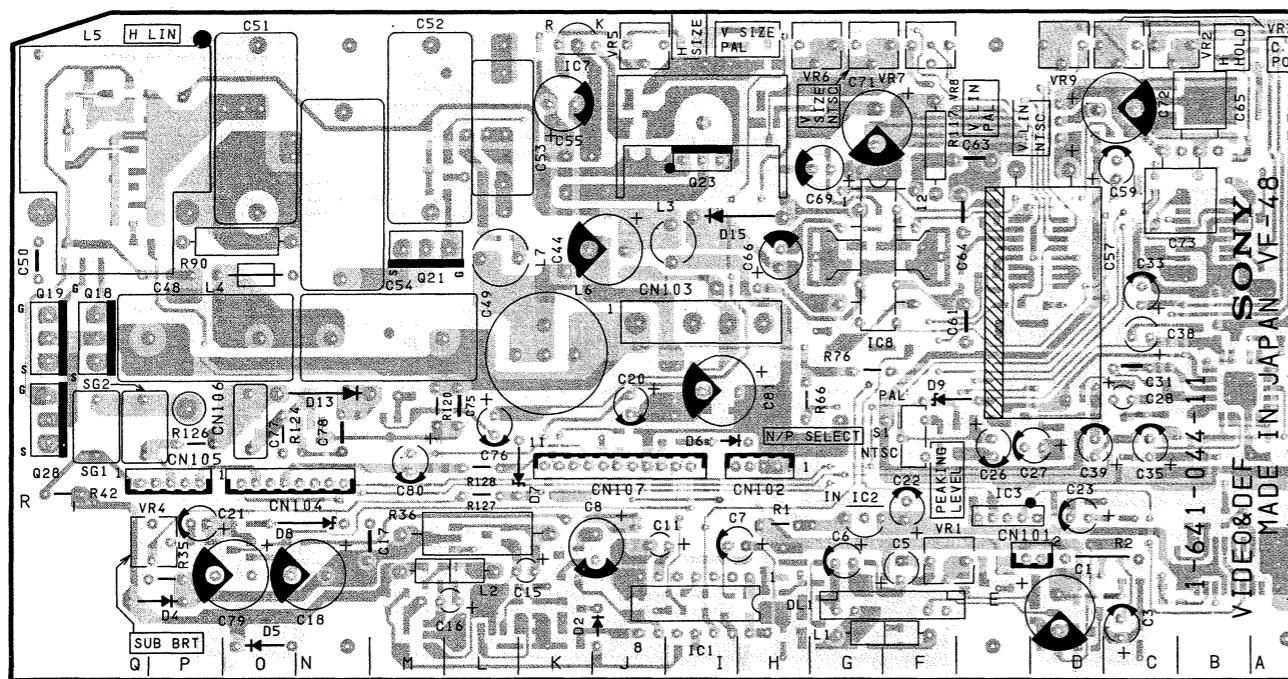
C-5 (a)

C-6 (a)

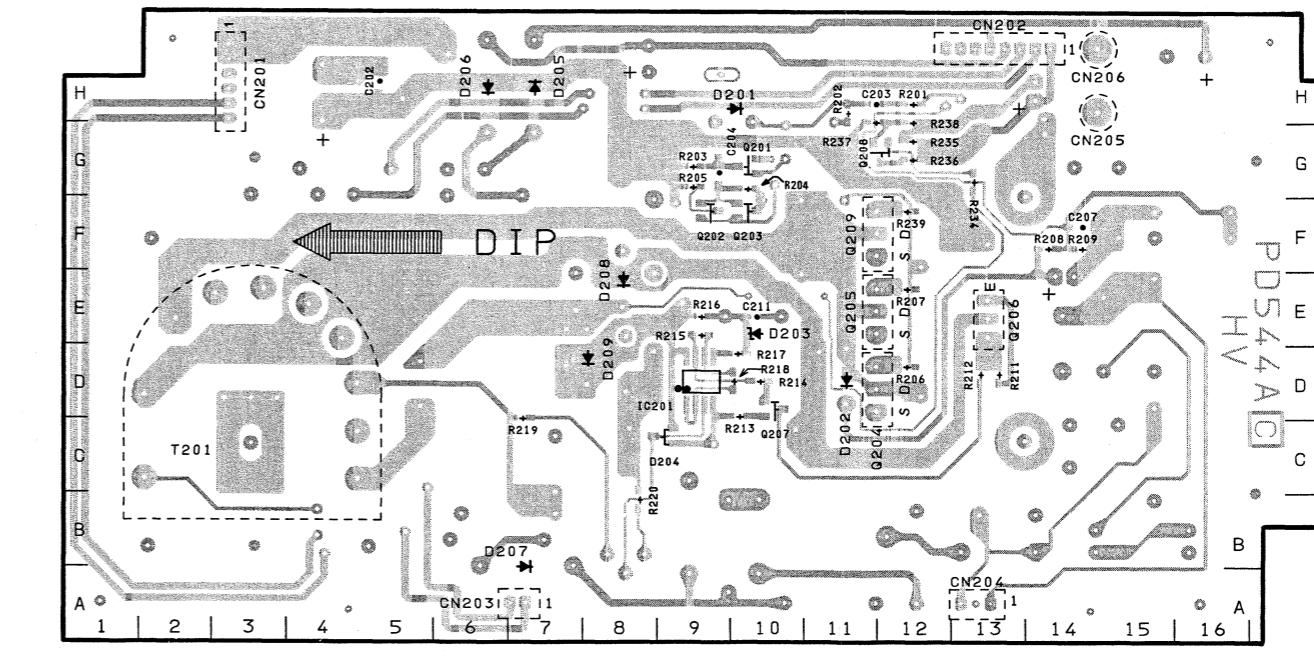
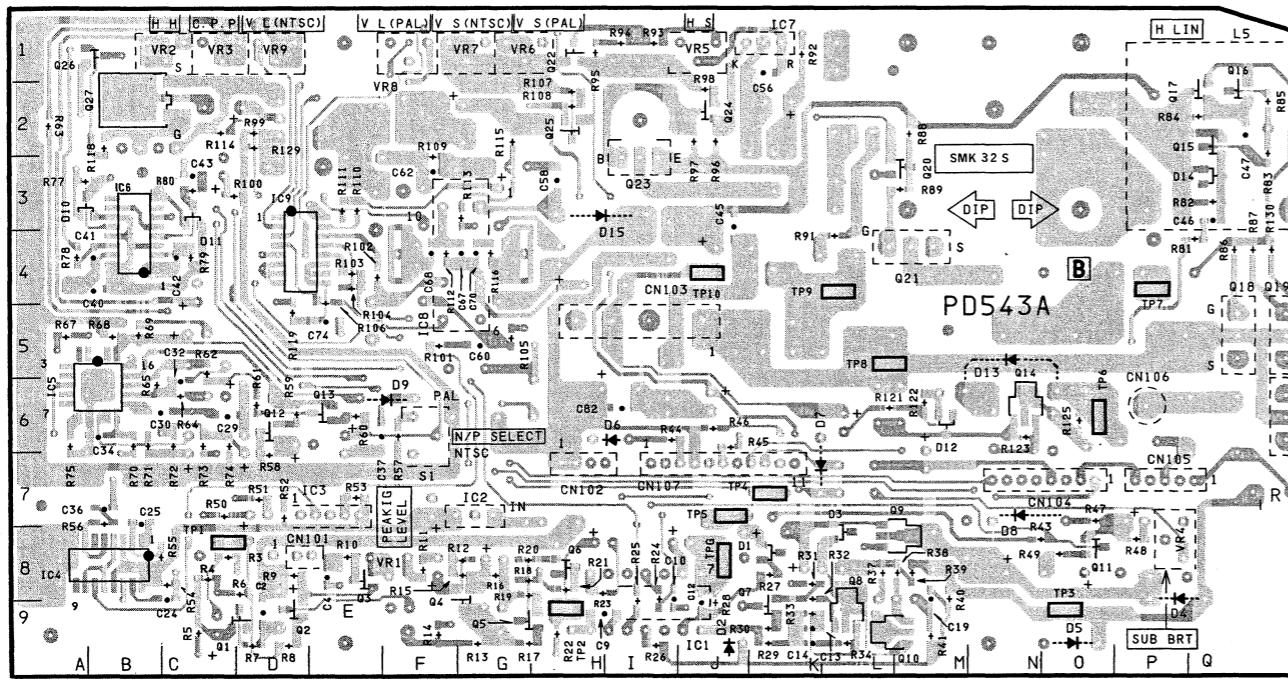
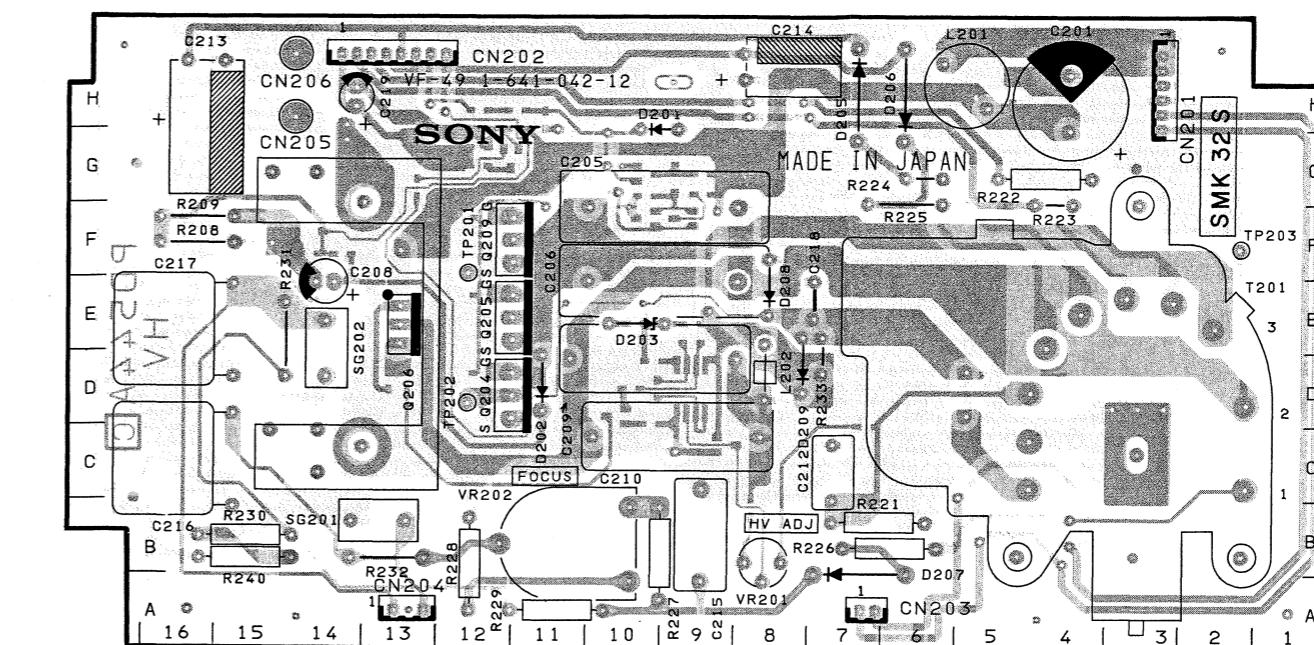
BVF-77 (J, UC)
BVF-77CE (EK)

Serial No. 10041 to 10070 (UC)
30031 to 30050 (J)
40081 to 40130 (EK)

VF-48 BOARD



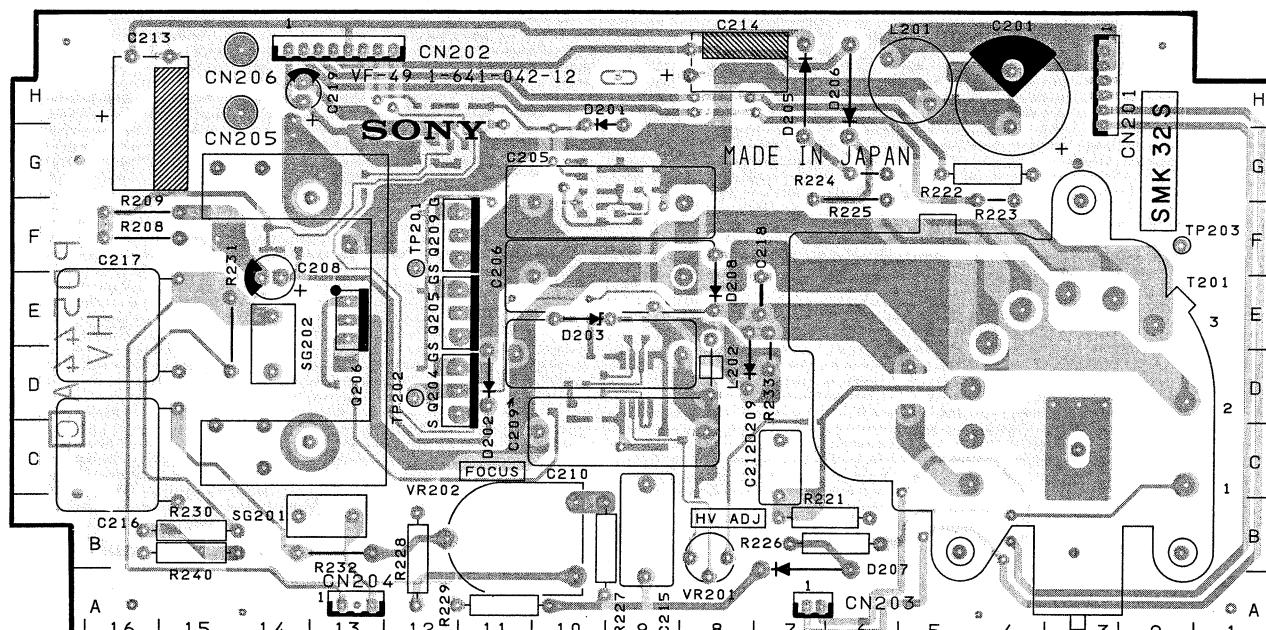
VF-49 BOARD



C-4 (b)

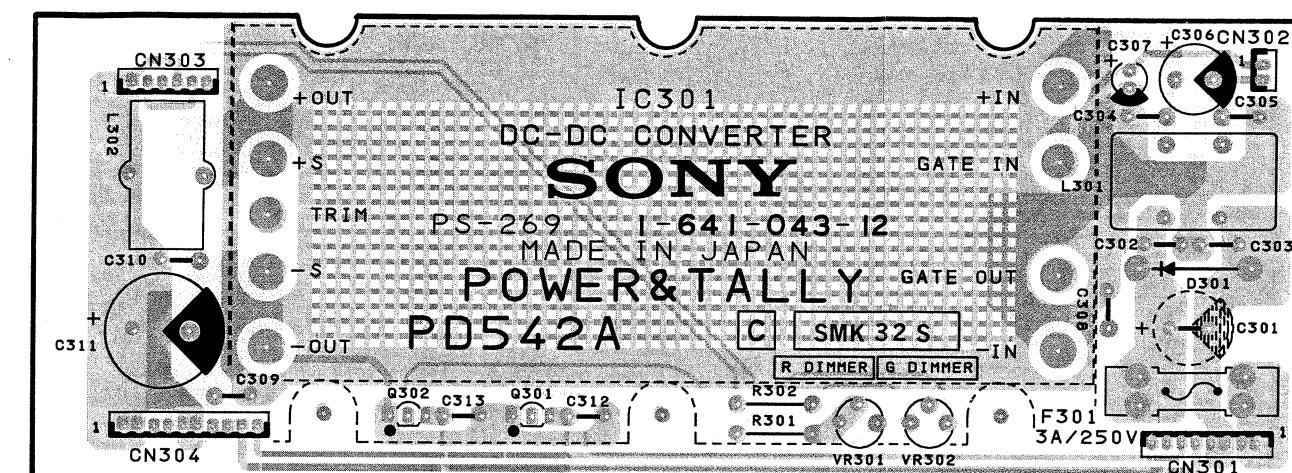
C-5 (b)

VF-49 BOARD



1-641-042-12

PS-269 BOARD



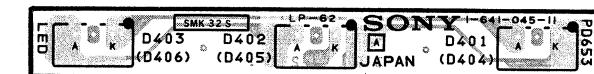
1-641-043-12 COMPONENT SIDE

This image shows a detailed PCB layout diagram. The board features various components such as resistors (R201-R239), diodes (D201-D209), transistors (T201, Q201-Q209), and integrated circuits (IC201). Numerous labels indicate component designators, pin numbers, and connection points. A prominent feature is a central 'DIP' component with a large arrow pointing towards it. The board is labeled with letters A through H along its top and bottom edges, and numbers 1 through 16 along its left and right edges. Specific connection points are marked with labels like 'CN201', 'CN202', 'CN203', 'CN204', 'CN205', 'CN206', and 'CN207'. The layout is highly interconnected, with many traces crossing each other.

1-641-042-12 SOLDERING SIDE

C-5 (b)

LP-62 BOARD



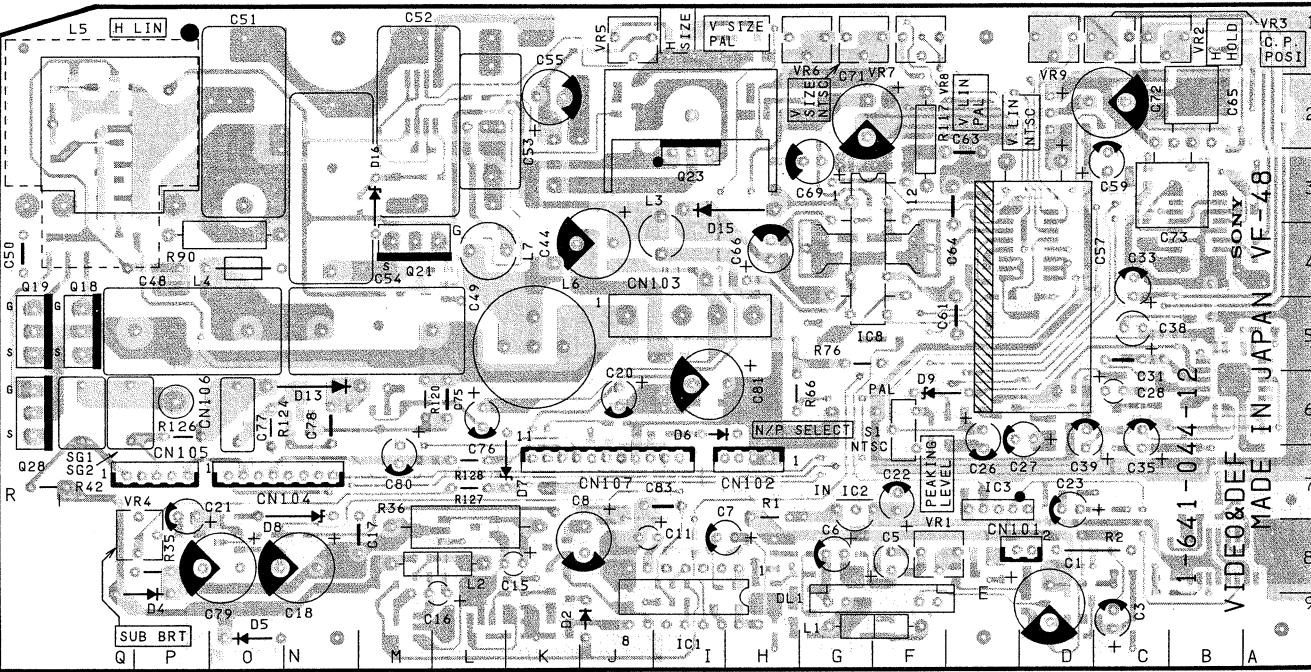
1-641-045-11 COMPONENT SIDE

C-6 (b)

BVF-77 (J, UC)
BVF-77CE (EK)

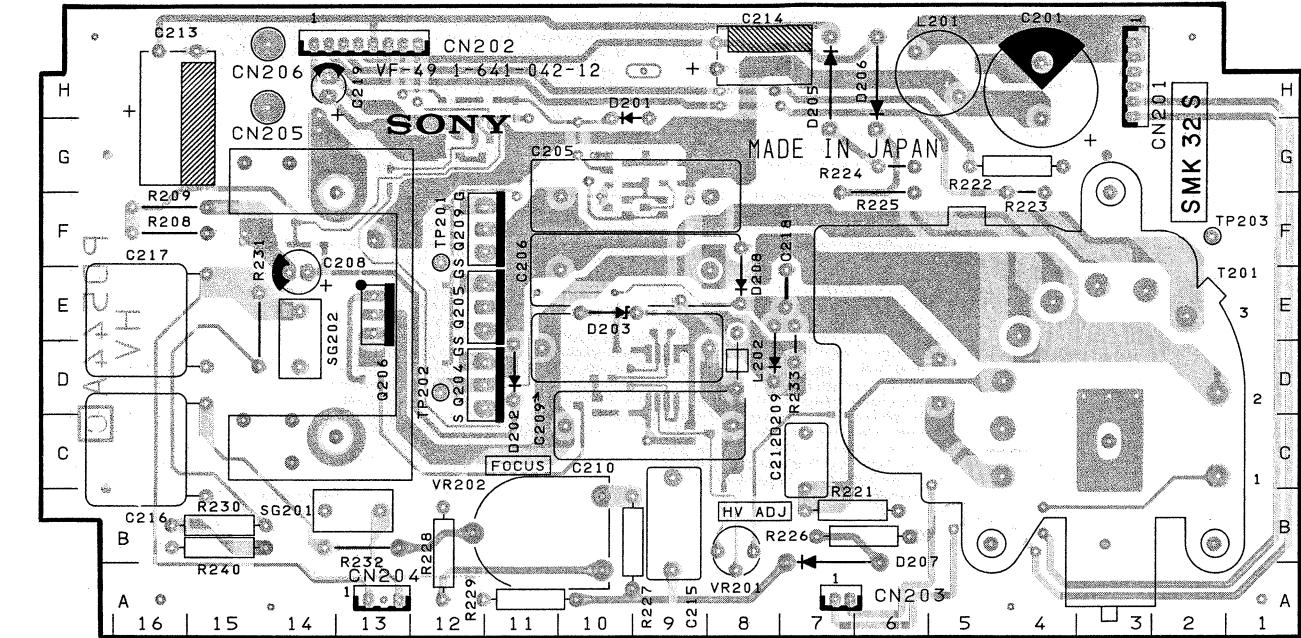
| | | |
|------------|---------|------|
| Serial No. | 10071 - | (UC) |
| | 30051 - | (J) |
| | 40131 - | (EK) |

VF-48 BOARD

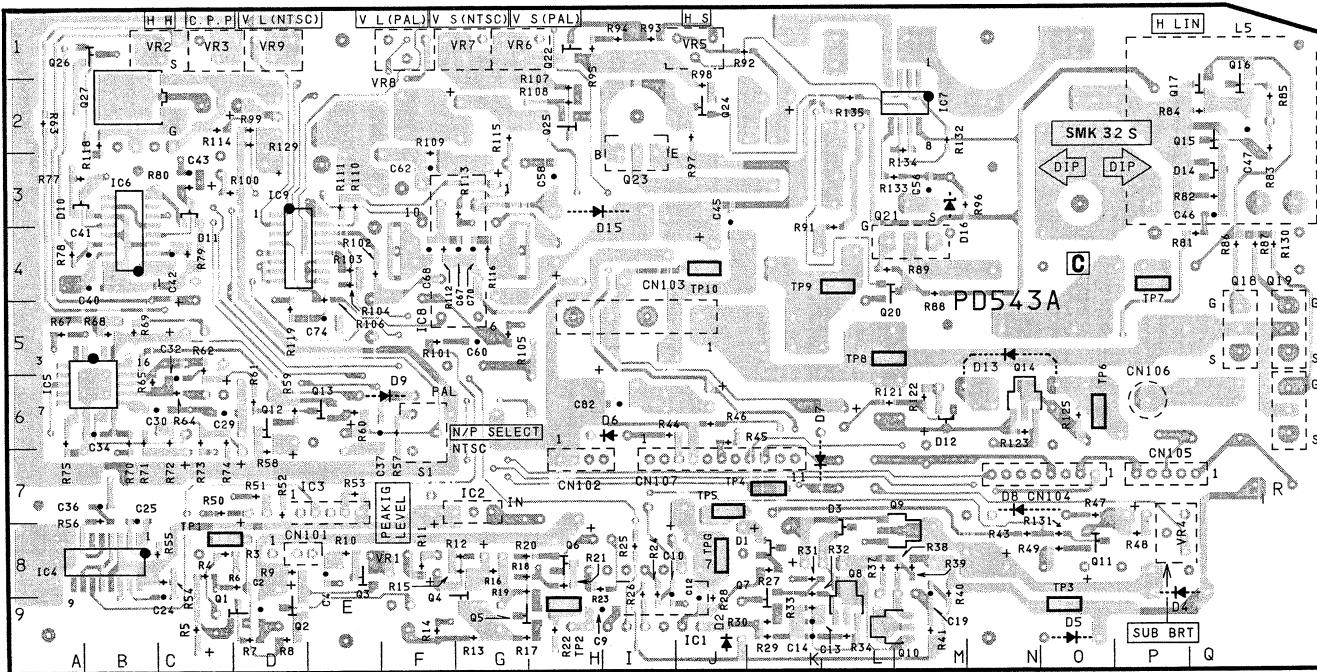


1-641-044-12 COMPONENT SIDE

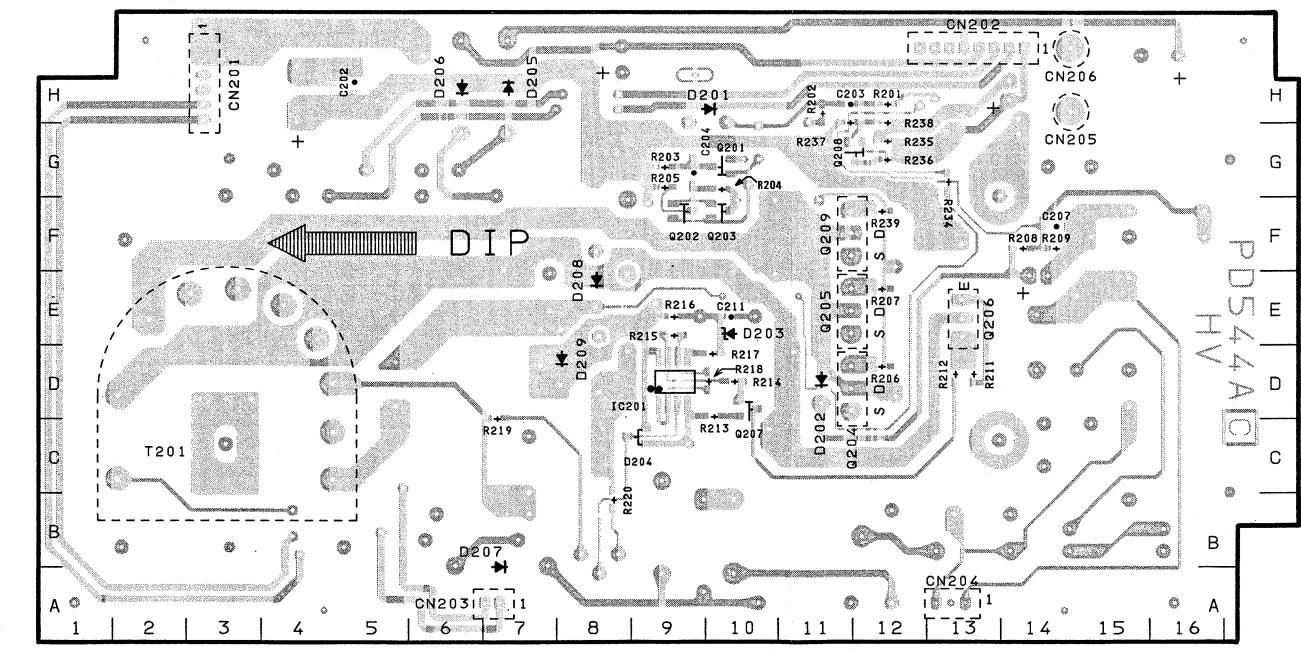
VF-49 BOAR



1-641-042-12 COMPONENT SIDE



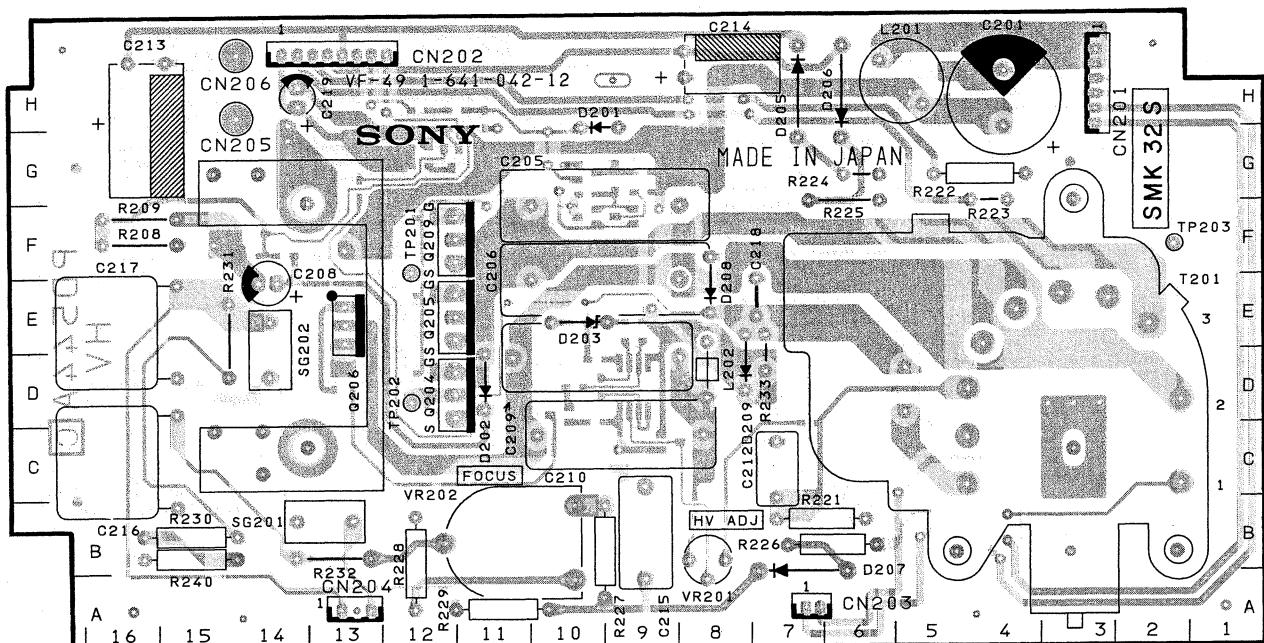
1-641-044-12 SOLDERING SIDE



1-641-042-12 SOLDERING SIDE

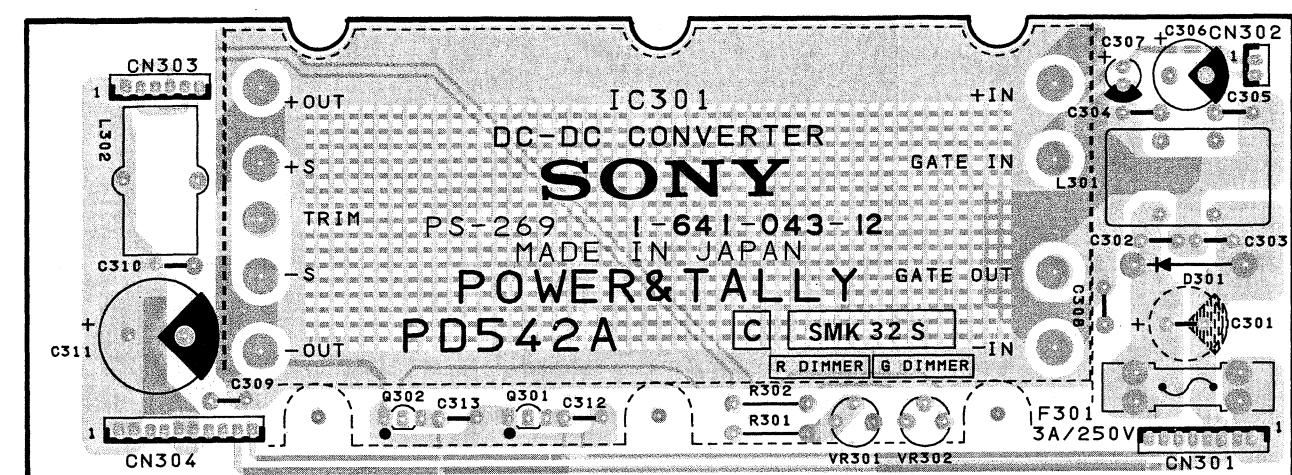
C-4 (c)

VF-49 BOARD

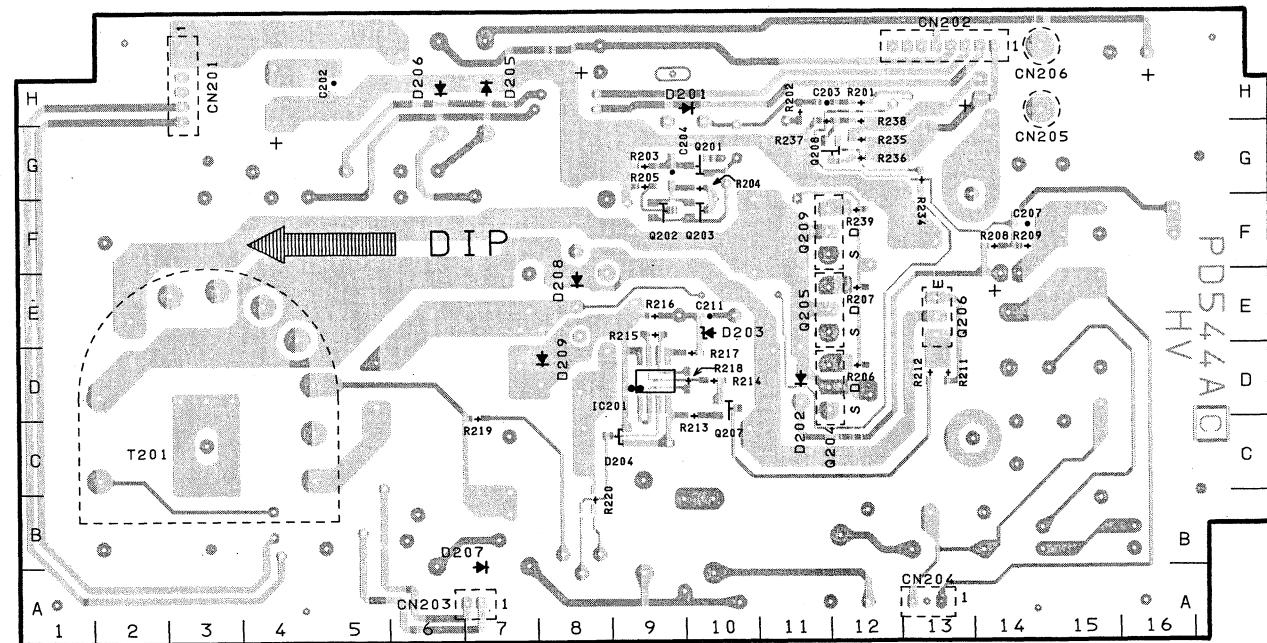


1-641-042-12 COMPONENT SIDE

PS-269 BOARD

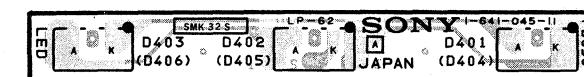


1-641-043-12 COMPONENT SIDE



1-641-042-12 SOLDERING SIDE

LP-62 BOARD



1-641-045-11 COMPONENT SIDE

Serial No. 10191 - (UC)
30061 - (J)
40171 - (EK)

VR-179A BOARD

1-648-737-11
COMPONENT SIDE

VR-179B BOARD

1-648-737-11
COMPONENT SIDE

VR-179C BOARD

1-648-737-11
COMPONENT SIDE

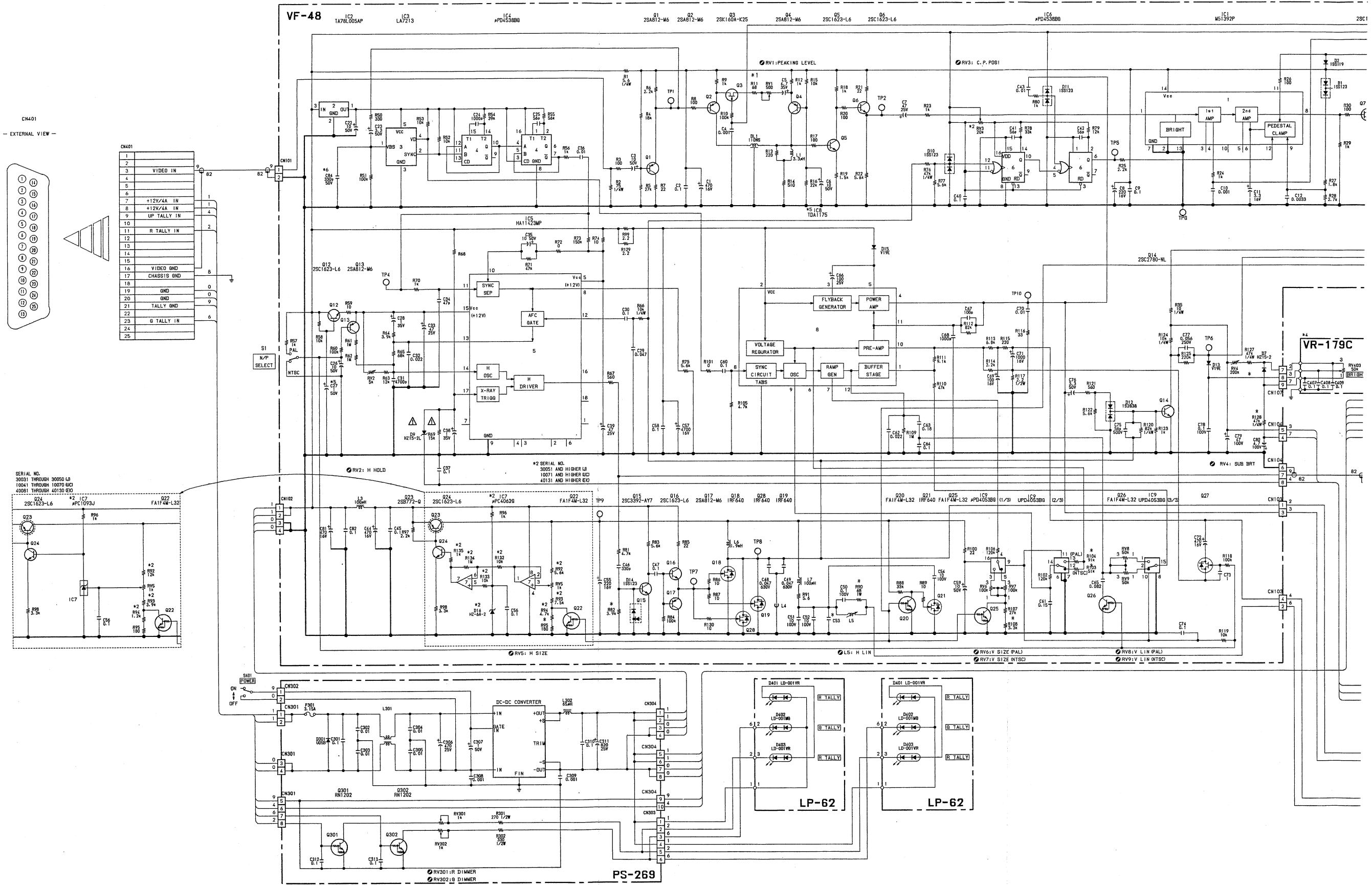
FRAME WIRING

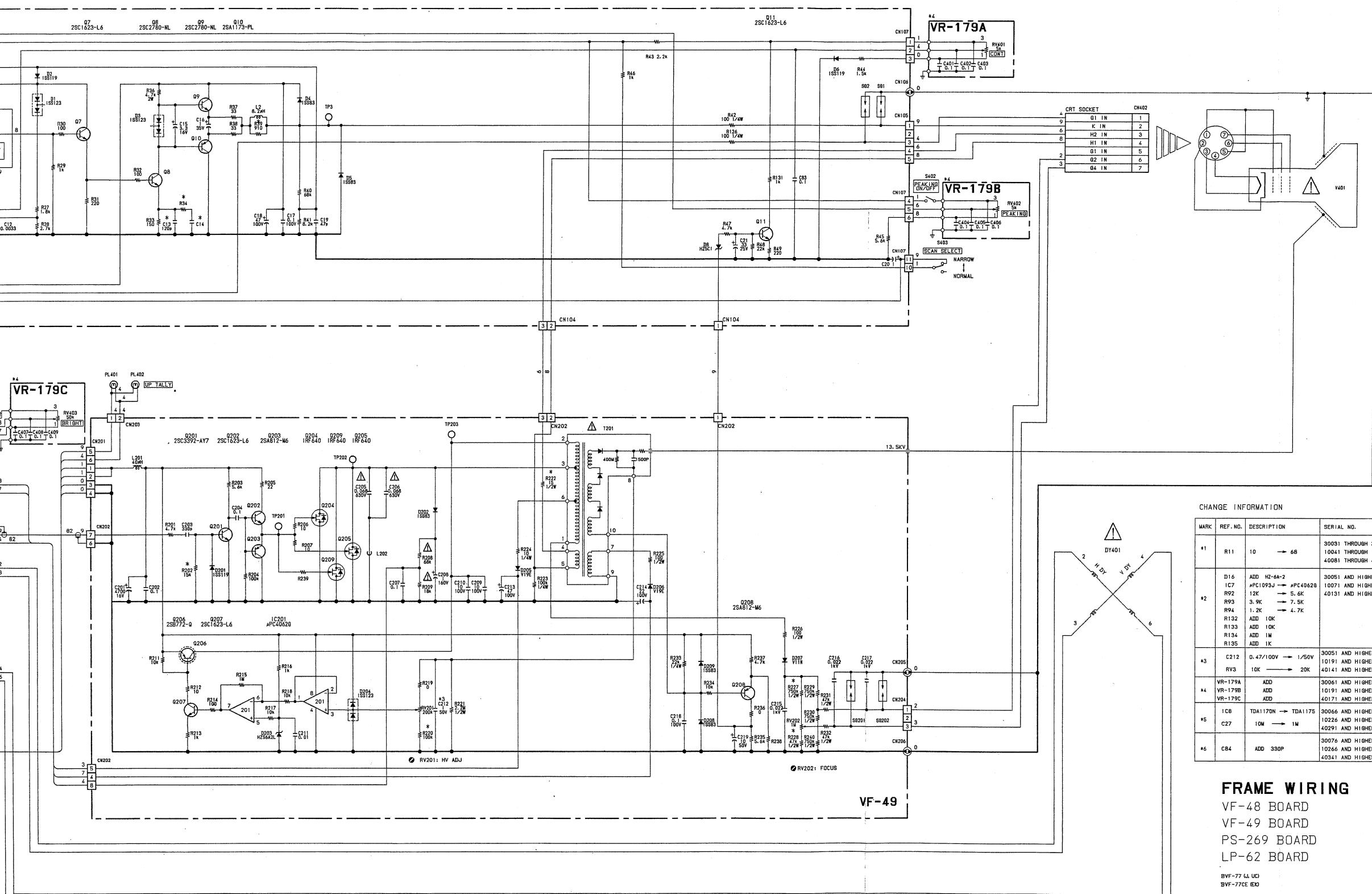
VF-48 BOARD

VF-49 BOARD

PS-269 BOARD

LP-62 BOARD



**CHANGE INFORMATION****FRAME WIRING**

VF-48 BOARD

VF-49 BOARD

PS-269 BOARD

LP-62 BOARD

BVF-77 (J, U)
BVF-77CE (E)

SECTION D

SPARE PARTS

PARTS INFORMATION

1. Safety Related Component Warning

Components identified by shading marked with  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replace parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
 - This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
 - Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.
3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. Abbreviation

All capacitors are in micro farads unless otherwise specified.

All inductors are in micro henries unless otherwise specified.

All resistors are in ohms.

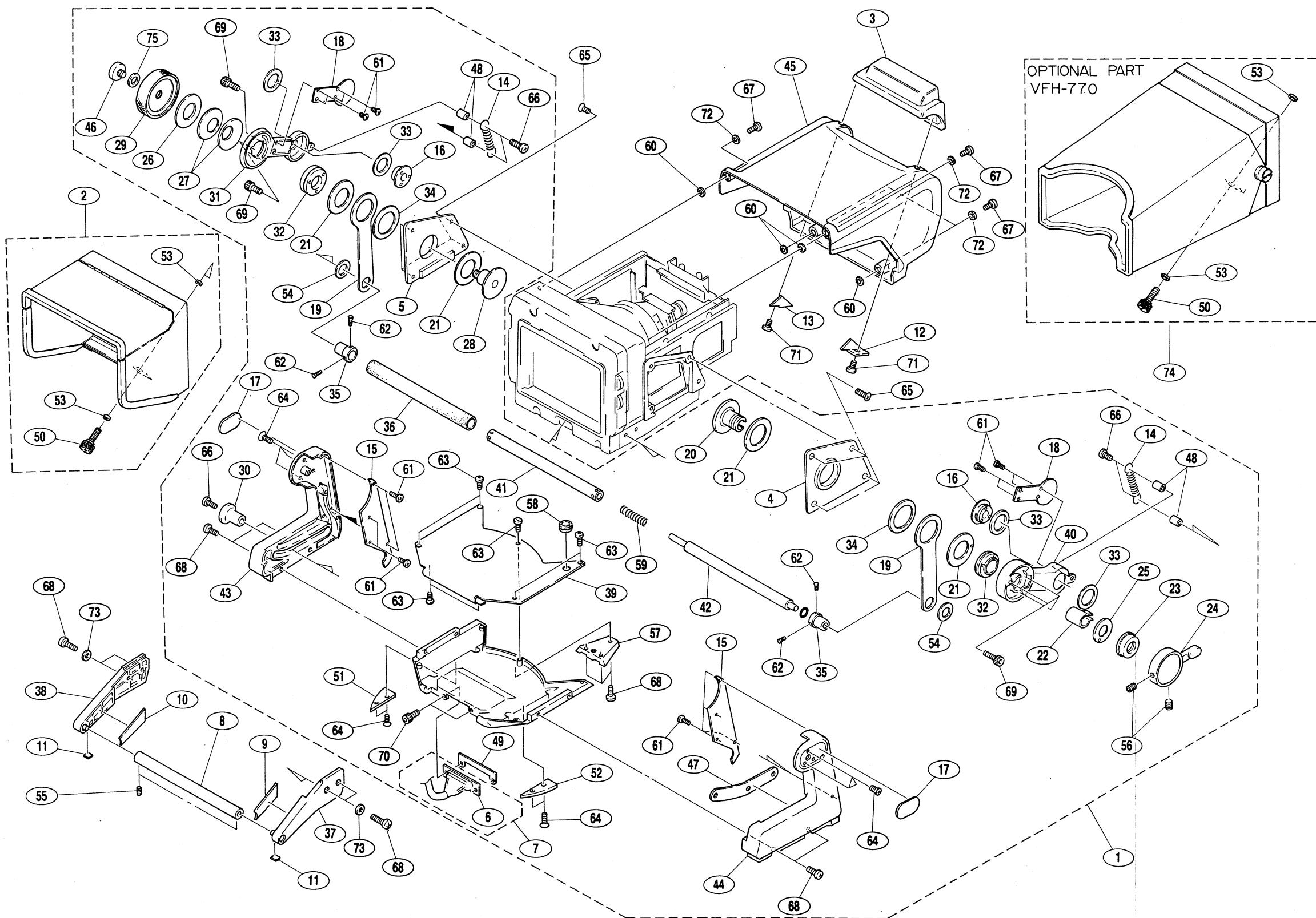
TILT TABLE BLOCK

EXPLODED VIEW

TILT TABLE BLOCK

| No. | Part No. | SP Description | |
|-----|--------------|-------------------------------|--|
| 1 | A-7612-413-A | o TABLE ASSY, TILT | 56 3-701-513-00 s SCREW, SET, POINT, DOUBLE |
| 2 | X-3166-281-1 | o HOOD ASSY, INDOOR | 57 3-716-391-01 o WEDGE, MOUNTING |
| 3 | X-3166-334-1 | o COVER ASSY, TALLY | 58 3-824-174-00 s BUSHING, RUBBER |
| 4 | X-3166-335-1 | o PLATE (R) ASSY, SIDE | 59 4-555-003-00 s SPRING |
| 5 | X-3166-337-1 | o PLATE (L) ASSY, SIDE | 60 7-623-923-11 s WASHER 2.6, NYLONE |
| 6 | 1-560-904-11 | s CONNECTOR, MULTI 25P | 61 7-627-553-47 s SCREW, PRECISION +P 2X4 |
| 7 | 1-949-150-11 | s HARNESS (25P) | 62 7-627-553-38 s SCREW, PRECISION +P 2X3 |
| 8 | 3-172-770-01 | o PIPE, HANDLE | 63 7-627-556-38 s SCREW +P 2.6X5 |
| 9 | 3-172-771-01 | o PLATE (R), BLIND, HANDLE | 64 7-682-247-04 s SCREW +K 3X6 |
| 10 | 3-172-772-01 | o PLATE (L), BLIND, HANDLE | 65 7-682-261-04 s SCREW +K 4X8 |
| 11 | 3-172-773-01 | o PLATE, PAD | 66 7-682-548-09 s SCREW +B 3X8 |
| 12 | 3-172-774-01 | o RETAINER (R) | 67 7-682-549-04 s SCREW +B 3X10 |
| 13 | 3-172-775-01 | o RETAINER (L) | 68 7-682-562-04 s SCREW +B 4X10 |
| 14 | 3-172-784-01 | s SPRING, TENSION | 69 7-683-403-04 s BOLT, HEXAGON SOCKET 3X6 |
| 15 | 3-172-785-02 | o PLATE, BLIND, TILT | 70 7-683-412-05 s BOLT, HEXAGON SOCKET 2.6X6 |
| 16 | 3-172-786-01 | o SHAFT, LIFT ROTARY | 71 7-685-135-19 s SCREW +P 2.6X10 TYPE2 |
| 17 | 3-172-787-01 | o PLATE, ORNAMENTAL, TILT | 72 7-688-003-11 s W 3, MIDDLE |
| 18 | 3-172-788-01 | o PLATE, BLIND, ARM | 73 7-688-004-11 s W 4, MIDDLE |
| 19 | 3-172-789-01 | o ARM (B), TILT | 74 OPTIONAL PART: VIEWFINDER HOOD VFH-770 |
| 20 | 3-172-790-01 | o SHAFT, LOCK | 75 3-701-446-21 s WASHER, 8 |
| 21 | 3-172-791-11 | o PLATE, FRICTION | |
| 22 | 3-172-792-01 | o GUARD, HARNESS | |
| 23 | 3-172-793-01 | o SCREW, LOCK | |
| 24 | 3-172-794-01 | s LEVER, TILT LOCK | |
| 25 | 3-172-795-01 | o WASHER (18), DU THRUST | |
| 26 | 3-172-796-01 | o WASHER (22), DU THRUST | |
| 27 | 3-172-801-01 | s SPRING (PIA.20) | |
| 28 | 3-172-802-01 | o SHAFT, FRICTION | |
| 29 | 3-172-803-01 | s KNOB, FRICTION | |
| 30 | 3-172-805-01 | s KNOB, MUSHROOM | |
| 31 | 3-172-806-01 | o ARM (A) (L), TILT | |
| 32 | 3-172-808-01 | o SHAFT (B), TILT | |
| 33 | 3-172-809-01 | o SHEET (A), THRUST | |
| 34 | 3-172-810-01 | o SHEET (B), THRUST | |
| 35 | 3-172-813-01 | o CAP, PIPE | |
| 36 | 3-172-814-01 | o PIPE, RUBBER | |
| 37 | 3-172-825-01 | o HANDLE (R) | |
| 38 | 3-172-826-01 | o HANDLE (L) | |
| 39 | 3-172-832-01 | o LID, PAN BASE | |
| 40 | 3-172-833-01 | o ARM (A) (R), TILT | |
| 41 | 3-172-834-01 | o PIPE | |
| 42 | 3-172-835-01 | o BOOM | |
| 43 | 3-172-841-01 | o TILT (L) | |
| 44 | 3-172-842-01 | o TILT (R) | |
| 45 | 3-172-847-01 | o COVER | |
| 46 | 3-173-371-02 | s SCREW, PUNCHING STOPPER | |
| 47 | 3-173-372-01 | o SHEET, SLIPPING | |
| 48 | 3-661-588-00 | o SPACER (3X5) | |
| 49 | 3-675-929-00 | o NUT (50P), PLATE | |
| 50 | 3-680-616-11 | s SCREW | |
| 51 | 3-692-333-01 | o PLATE (LEFT) | |
| 52 | 3-692-334-01 | o PLATE (RIGHT) | |
| 53 | 3-701-440-21 | s WASHER, 3.5 | |
| 54 | 3-701-448-21 | s WASHER, POLYETHYLENE | |
| 55 | 3-701-505-00 | s SET SCREW, DOUBLE POINT 3X3 | |

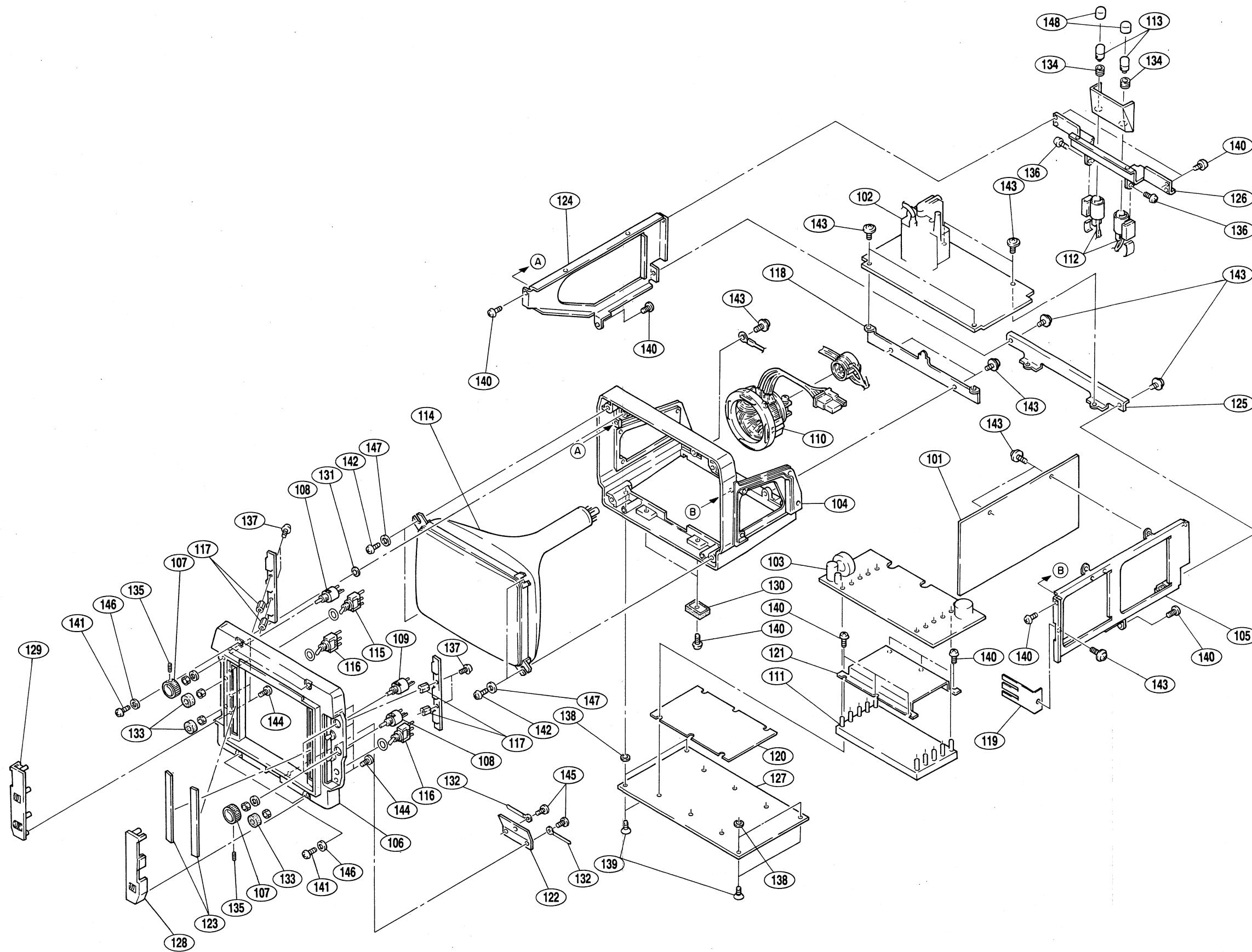
TILT TABLE BLOCK



CHASSIS BLOCK

CHASSIS BLOCK

CHASSIS BLOCK



D-5

D-6

BVF-77 (J, UC)
BVF-77CE (EK)

CHASSIS BLOCK

| No. | Part No. | SP Description |
|-----|---------------|---|
| 101 | A-7515-385-A | o MOUNTED CIRCUIT BOARD, VF-48 (PD-543) |
| 102 | A-7515-386-A | o MOUNTED CIRCUIT BOARD, VF-49 (PD-544) |
| 103 | A-7515-387-A | o MOUNTED CIRCUIT BOARD, PS-269 (PD-542) |
| 104 | X-3166-280-1 | o CHASSIS ASSY, MAIN |
| 105 | X-3166-333-1 | o FRAME (R) ASSY |
| 106 | X-3166-336-1 | o BEZEL ASSY |
| 107 | X-3166-356-1 | o KNOB ASSY, VOLUME |
| 108 | 1-238-506-11 | s RES, VAR, METAL 5K "CENT" "PEAKING" |
| 109 | 1-241-624-11 | s RES, VAR, METAL 50K "BRIGHT" |
| 110 | ▲1-451-397-11 | s DEFLECTION YOKE |
| 111 | 1-466-615-11 | s CONVERTER UNIT, DC-DC |
| 112 | 1-517-075-00 | s SOCKET, LAMP |
| 113 | 1-518-411-00 | s LAMP "UP TALLY" |
| 114 | ▲1-546-090-11 | s CRT |
| 115 | 1-554-355-00 | s SWITCH, TOGGLE "PEAKING" |
| 116 | 1-571-070-11 | s SWITCH, TOGGLE "SCAN SELECT""POWER" |
| 117 | 2-542-223-01 | o SUPPORT, PC BOARD |
| 118 | 3-172-767-01 | o FRAME (FRONT) |
| 119 | 3-172-768-01 | o SPRING, CRT GROUND |
| 120 | 3-172-778-01 | s PAD, THERMAL |
| 121 | 3-172-779-01 | o PLATE, SHIELD |
| 122 | 3-172-780-01 | o NUT, PLATE |
| 123 | 3-172-781-01 | o MASK, LED |
| 124 | 3-172-822-01 | o FRAME (L) |
| 125 | 3-172-823-01 | o FRAME (REAR) |
| 126 | 3-172-824-02 | o FRAME (TOP) |
| 127 | 3-172-829-01 | o PLATE, BOTTOM |
| 128 | 3-172-830-01 | o LABEL (R), SW |
| 129 | 3-172-831-01 | o LABEL (L), SW |
| 130 | 3-693-297-01 | s FOOT, RUBBER, RADIATION |
| 131 | 3-701-438-21 | s WASHER |
| 132 | 3-701-822-00 | o HOLDER, WIRE |
| 133 | 3-729-007-01 | o PLATE, ORNAMENTAL, TOGGLE SW |
| 134 | 3-824-174-00 | s BUSHING, RUBBER |
| 135 | 7-621-734-09 | s SET-SCT,HEX. 2.6X3 |
| 136 | 7-621-770-87 | s SCREW +B 2.6X5 |
| 137 | 7-621-772-08 | s SCREW +B 2X3 |
| 138 | 7-623-923-11 | s WASHER 2.6, NYLONE |
| 139 | 7-682-248-04 | s SCREW +K 3X8 |
| 140 | 7-682-547-09 | s SCREW +B 3X6 |
| 141 | 7-682-552-09 | s SCREW +B 3X16 |
| 142 | 7-682-574-04 | s SCREW +B 5X8 |
| 143 | 7-682-903-01 | s SCREW +PWH 3X5 |
| 144 | 7-685-104-19 | s SCREW +P 2X6 TYPE2 NON-SLIT |
| 145 | 7-685-145-11 | s SCREW +P 3X6 TYPE2 NON-SLIT |
| 146 | 7-688-003-12 | s WASHER 3, MIDDLE |
| 147 | 7-688-006-12 | s WASHER 6, MIDDLE |
| 148 | 3-173-323-01 | s CAP, TALLY LAMP |

ELECTRICAL PARTS LIST

RESISTOR, CHIP METAL

Part No. SP Description

| | | | |
|--------------|-------------------|------|----------|
| 1-216-603-11 | s RES, CHIP METAL | 10 | 1% 1/10W |
| 1-216-605-11 | s RES, CHIP METAL | 12 | 1% 1/10W |
| 1-216-609-11 | s RES, CHIP METAL | 18 | 1% 1/10W |
| 1-216-611-11 | s RES, CHIP METAL | 22 | 1% 1/10W |
| 1-216-614-11 | s RES, CHIP METAL | 30 | 1% 1/10W |
| 1-216-617-11 | s RES, CHIP METAL | 39 | 1% 1/10W |
| 1-216-619-11 | s RES, CHIP METAL | 47 | 1% 1/10W |
| 1-216-620-11 | s RES, CHIP METAL | 51 | 1% 1/10W |
| 1-216-623-11 | s RES, CHIP METAL | 68 | 1% 1/10W |
| 1-216-624-11 | s RES, CHIP METAL | 75 | 1% 1/10W |
| 1-216-625-11 | s RES, CHIP METAL | 82 | 1% 1/10W |
| 1-216-626-11 | s RES, CHIP METAL | 91 | 1% 1/10W |
| 1-216-627-11 | s RES, CHIP METAL | 100 | 1% 1/10W |
| 1-216-629-11 | s RES, CHIP METAL | 120 | 1% 1/10W |
| 1-216-631-11 | s RES, CHIP METAL | 150 | 1% 1/10W |
| 1-216-633-11 | s RES, CHIP METAL | 180 | 1% 1/10W |
| 1-216-634-11 | s RES, CHIP METAL | 200 | 1% 1/10W |
| 1-216-635-11 | s RES, CHIP METAL | 220 | 1% 1/10W |
| 1-216-636-11 | s RES, CHIP METAL | 240 | 1% 1/10W |
| 1-216-637-11 | s RES, CHIP METAL | 270 | 1% 1/10W |
| 1-216-638-11 | s RES, CHIP METAL | 300 | 1% 1/10W |
| 1-216-639-11 | s RES, CHIP METAL | 330 | 1% 1/10W |
| 1-216-640-11 | s RES, CHIP METAL | 360 | 1% 1/10W |
| 1-216-641-11 | s RES, CHIP METAL | 390 | 1% 1/10W |
| 1-216-642-11 | s RES, CHIP METAL | 430 | 1% 1/10W |
| 1-216-643-11 | s RES, CHIP METAL | 470 | 1% 1/10W |
| 1-216-644-11 | s RES, CHIP METAL | 510 | 1% 1/10W |
| 1-216-645-11 | s RES, CHIP METAL | 560 | 1% 1/10W |
| 1-216-647-11 | s RES, CHIP METAL | 680 | 1% 1/10W |
| 1-216-648-11 | s RES, CHIP METAL | 750 | 1% 1/10W |
| 1-216-649-11 | s RES, CHIP METAL | 820 | 1% 1/10W |
| 1-216-650-11 | s RES, CHIP METAL | 910 | 1% 1/10W |
| 1-216-651-11 | s RES, CHIP METAL | 1.0k | 1% 1/10W |
| 1-216-652-11 | s RES, CHIP METAL | 1.1k | 1% 1/10W |
| 1-216-653-11 | s RES, CHIP METAL | 1.2k | 1% 1/10W |
| 1-216-655-11 | s RES, CHIP METAL | 1.5k | 1% 1/10W |
| 1-216-656-11 | s RES, CHIP METAL | 1.6k | 1% 1/10W |
| 1-216-657-11 | s RES, CHIP METAL | 1.8k | 1% 1/10W |
| 1-216-658-11 | s RES, CHIP METAL | 2k | 1% 1/10W |
| 1-216-659-11 | s RES, CHIP METAL | 2.2k | 1% 1/10W |
| 1-216-660-11 | s RES, CHIP METAL | 2.4k | 1% 1/10W |
| 1-216-661-11 | s RES, CHIP METAL | 2.7k | 1% 1/10W |
| 1-216-662-11 | s RES, CHIP METAL | 3k | 1% 1/10W |
| 1-216-663-11 | s RES, CHIP METAL | 3.3k | 1% 1/10W |
| 1-216-664-11 | s RES, CHIP METAL | 3.5k | 1% 1/10W |
| 1-216-665-11 | s RES, CHIP METAL | 3.9k | 1% 1/10W |
| 1-216-666-11 | s RES, CHIP METAL | 4.3k | 1% 1/10W |
| 1-216-667-11 | s RES, CHIP METAL | 4.7k | 1% 1/10W |
| 1-216-668-11 | s RES, CHIP METAL | 5.1k | 1% 1/10W |
| 1-216-669-11 | s RES, CHIP METAL | 5.6k | 1% 1/10W |

RESISTOR, CHIP METAL

Part No. SP Description

| | | | |
|--------------|-------------------|------|----------|
| 1-216-670-11 | s RES, CHIP METAL | 6.2k | 1% 1/10W |
| 1-216-671-11 | s RES, CHIP METAL | 6.8k | 1% 1/10W |
| 1-216-672-11 | s RES, CHIP METAL | 7.5k | 1% 1/10W |
| 1-216-673-11 | s RES, CHIP METAL | 8.2k | 1% 1/10W |
| 1-216-674-11 | s RES, CHIP METAL | 9.1k | 1% 1/10W |

| | | | |
|--------------|-------------------|-----|----------|
| 1-216-675-11 | s RES, CHIP METAL | 10k | 1% 1/10W |
| 1-216-676-11 | s RES, CHIP METAL | 11k | 1% 1/10W |
| 1-216-677-11 | s RES, CHIP METAL | 12k | 1% 1/10W |
| 1-216-678-11 | s RES, CHIP METAL | 13k | 1% 1/10W |
| 1-216-679-11 | s RES, CHIP METAL | 15k | 1% 1/10W |

| | | | |
|--------------|-------------------|-----|----------|
| 1-216-680-11 | s RES, CHIP METAL | 16k | 1% 1/10W |
| 1-216-681-11 | s RES, CHIP METAL | 18k | 1% 1/10W |
| 1-216-682-11 | s RES, CHIP METAL | 20k | 1% 1/10W |
| 1-216-683-11 | s RES, CHIP METAL | 22k | 1% 1/10W |
| 1-216-684-11 | s RES, CHIP METAL | 24k | 1% 1/10W |

| | | | |
|--------------|-------------------|-----|----------|
| 1-216-685-11 | s RES, CHIP METAL | 27k | 1% 1/10W |
| 1-216-686-11 | s RES, CHIP METAL | 30k | 1% 1/10W |
| 1-216-687-11 | s RES, CHIP METAL | 33k | 1% 1/10W |
| 1-216-688-11 | s RES, CHIP METAL | 36k | 1% 1/10W |
| 1-216-689-11 | s RES, CHIP METAL | 39k | 1% 1/10W |

| | | | |
|--------------|-------------------|-----|----------|
| 1-216-690-11 | s RES, CHIP METAL | 43k | 1% 1/10W |
| 1-216-691-11 | s RES, CHIP METAL | 49k | 1% 1/10W |
| 1-216-692-11 | s RES, CHIP METAL | 51k | 1% 1/10W |
| 1-216-693-11 | s RES, CHIP METAL | 56k | 1% 1/10W |
| 1-216-694-11 | s RES, CHIP METAL | 62k | 1% 1/10W |

| | | | |
|--------------|-------------------|------|----------|
| 1-216-695-11 | s RES, CHIP METAL | 68k | 1% 1/10W |
| 1-216-696-11 | s RES, CHIP METAL | 75k | 1% 1/10W |
| 1-216-697-11 | s RES, CHIP METAL | 82k | 1% 1/10W |
| 1-216-698-11 | s RES, CHIP METAL | 91k | 1% 1/10W |
| 1-216-699-11 | s RES, CHIP METAL | 100k | 1% 1/10W |

LP-62 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|------------------------------|
| 1pc | 1-641-045-11 o | PRINTED CIRCUIT BOARD, LP-62 |
| D401 | 8-719-946-55 s | DIODE LD-001VR; RED |
| D402 | 8-719-948-07 s | DIODE LD-001MG; GREEN |
| D403 | 8-719-946-55 s | DIODE LD-001VR; RED |

PS-269 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|------------------------------|
| 1pc | A-7515-387-A o | OUNTED CIRCUIT BOARD, PS-269 |
| C301 | 1-136-800-11 s | FILM 0.1uF 5% 50V |
| C302 | 1-164-232-11 s | CERAMIC, CHIP 0.01uF 10% 50V |
| C303 | 1-164-232-11 s | CERAMIC, CHIP 0.01uF 10% 50V |
| C304 | 1-164-232-11 s | CERAMIC, CHIP 0.01uF 10% 50V |
| C305 | 1-164-232-11 s | CERAMIC, CHIP 0.01uF 10% 50V |
| C306 | 1-126-104-11 s | ELECT 470uF 20% 35V |
| C307 | 1-126-801-11 s | ELECT 1uF 20% 50V |
| C308 | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| C309 | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| C310 | 1-136-800-11 s | FILM 0.1uF 5% 50V |
| C311 | 1-126-221-51 s | ELECT 820uF 20% 25V |
| C312 | 1-136-800-11 s | FILM 0.1uF 5% 50V |
| C313 | 1-136-800-11 s | FILM 0.1uF 5% 50V |
| CN301 | 1-506-473-11 o | CONNECTOR, 8P, MALE |
| CN302 | 1-506-467-11 o | CONNECTOR, 2P, MALE |
| CN303 | 1-506-471-11 o | CONNECTOR, 6P, MALE |
| CN304 | 1-506-475-11 o | CONNECTOR, 10P, MALE |
| D301 | 8-719-911-55 s | DIODE U05G |
| F301 | 1-576-133-11 s | FUSE, GLASS TUBE 3.15A 250V |
| L301 | 1-421-563-00 o | COIL, NOISE FILTER |
| L302 | 1-412-745-11 s | INDUCTOR 65uH |
| Q301 | 8-729-206-20 s | TRANSISTOR RN1202 |
| Q302 | 8-729-206-20 s | TRANSISTOR RN1202 |
| R301 | 1-260-092-11 s | CARBON 270 5% 1/2W |
| R302 | 1-260-093-11 s | CARBON 330 5% 1/2W |
| RV301 | 1-237-033-11 s | RES, ADJ, METAL 1K |
| RV302 | 1-237-033-11 s | RES, ADJ, METAL 1K |

Please see page D-8 for the part numbers of capacitors
and resistors that are not listed in the parts list.

VF-48 BOARD

(VF-48 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description | Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|--------------|----------------------------------|---------------------|----------------|---|
| 1pc | A-7515-385-A | o MOUNTED CIRCUIT BOARD, VF-48 | C60 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| C1 | 1-126-103-11 | s ELECT 470uF 20% 16V | C61 | 1-136-167-00 | s FILM 0.15uF 5% 50V |
| C2 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | C62 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V |
| C3 | 1-123-875-11 | s ELECT 10uF 20% 50V | C63 | 1-137-189-11 | s FILM 0.18uF 5% 50V |
| C4 | 1-163-275-11 | s CERAMIC 0.001uF 5% 50V | C64 | 1-136-800-11 | s FILM 0.1uF 5% 50V |
| C5 | 1-131-351-00 | s TANTALUM 4.7uF 10% 35V | C65 | 1-136-496-11 | s FILM 0.082uF 5% 50V |
| C6 | 1-123-875-11 | s ELECT 10uF 20% 50V | C66 | 1-126-375-11 | s ELECT 100uF 20% 25V |
| C7 | 1-124-126-00 | s ELECT 47uF 20% 16V | C67 | 1-163-251-11 | s CERAMIC 100PF 5% 50V |
| C8 | 1-124-570-11 | s ELECT 220uF 20% 16V | C68 | 1-163-275-11 | s CERAMIC 0.001uF 5% 50V |
| C9 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | C69 | 1-126-101-11 | s ELECT 100uF 20% 16V |
| C10 | 1-163-275-11 | s CERAMIC 0.001uF 5% 50V | C70 | 1-163-021-91 | s CERAMIC 0.01uF 10% 50V |
| C11 | 1-131-368-00 | s TANTALUM 3.3uF 10% 16V | C71 | 1-126-183-11 | s ELECT 1000uF 20% 16V |
| C12 | 1-164-182-11 | s CERAMIC, CHIP 3300PF 10% 100V | C72 | 1-126-103-11 | s ELECT 470uF 20% 16V |
| C13 | 1-163-253-11 | s CERAMIC 120PF 5% 50V | C73 | 1-136-177-00 | s FILM 1uF 5% 50V |
| C15 | 1-131-368-00 | s TANTALUM 3.3uF 10% 16V | C74 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| C16 | 1-131-347-00 | s TANTALUM 1uF 10% 35V | C75 | 1-107-165-00 | s MICA 56PF 5% 500V |
| C17 | 1-106-220-00 | s MYLAR 0.1uF 50% 100V | C76 | 1-126-162-11 | s ELECT 3.3uF 20% 50V |
| C18 | 1-128-498-11 | s ELECT 47uF 20% 100V | C77 | 1-136-188-11 | s FILM 0.068uF 5% 250V |
| C19 | 1-163-243-91 | s CERAMIC 47PF 5% 50V | C78 | 1-137-354-11 | s FILM 0.1uF 5% 100V |
| C20 | 1-126-801-11 | s ELECT 1uF 20% 50V | C79 | 1-128-498-11 | s ELECT 47uF 20% 100V |
| C21 | 1-124-126-00 | s ELECT 47uF 20% 25V | C80 | 1-124-927-11 | s ELECT 4.7uF 20% 100V |
| C22 | 1-123-875-11 | s ELECT 10uF 20% 50V | C81 | 1-126-103-11 | s ELECT 470uF 20% 16V |
| C23 | 1-126-162-11 | s ELECT 3.3uF 20% 50V | C82 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| C24 | 1-163-275-11 | s CERAMIC 0.001uF 5% 50V | C83 | 1-137-354-11 | s FILM 0.1uF 5% 100V |
| C25 | 1-163-245-11 | s CERAMIC 56PF 5% 50V | CN101 | 1-506-467-11 | o CONNECTOR, 2P, MALE |
| C26 | 1-123-875-11 | s ELECT 10uF 20% 50V | CN102 | 1-506-469-11 | o CONNECTOR, 4P, MALE |
| C27 | 1-123-875-11 | s ELECT 10uF 20% 50V | CN103 | 1-560-550-00 | o CONNECTOR, 4P, MALE |
| C28 | 1-131-347-00 | s TANTALUM 1uF 10% 35V | CN104 | 1-506-473-11 | o CONNECTOR, 8P, MALE |
| C29 | 1-163-035-00 | s CERAMIC, CHIP 0.047uF 50V | CN105 | 1-506-470-11 | o CONNECTOR, 5P, MALE |
| C30 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | CN106 | 1-506-163-00 | s PLUG |
| C31 | 1-163-017-00 | s CERAMIC, CHIP 0.0047uF 10% 50V | CN107 | 1-506-476-11 | o CONNECTOR, 11P, MALE |
| C32 | 1-163-037-11 | s CERAMIC, CHIP 0.022uF 10% 25V | D1 | 8-719-800-76 | s DIODE 1SS226 |
| C33 | 1-124-126-00 | s ELECT 47uF 20% 16V | D2 | 8-719-911-19 | s DIODE 1SS119 |
| C34 | 1-163-243-91 | s CERAMIC 47PF 5% 50V | D3 | 8-719-800-76 | s DIODE 1SS226 |
| C35 | 1-123-875-11 | s ELECT 10uF 20% 50V | D4 | 8-719-901-83 | s DIODE 1SS83 |
| C36 | 1-163-021-91 | s CERAMIC 0.01uF 10% 50V | D5 | 8-719-901-83 | s DIODE 1SS83 |
| C37 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | D6 | 8-719-911-19 | s DIODE 1SS119 |
| C38 | 1-131-347-00 | s TANTALUM 1uF 10% 35V | D7 | 8-719-110-42 | s DIODE RD15ES-B3 |
| C39 | 1-124-126-00 | s ELECT 47uF 20% 16V | D8 | 8-719-109-85 | s DIODE RD5.1ES-B2 |
| C40 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | D9 | ▲ 8-719-910-52 | s DIODE HZ15-2L |
| C41 | 1-163-245-11 | s CERAMIC 56PF 5% 50V | D10 | 8-719-800-76 | s DIODE 1SS226 |
| C42 | 1-163-245-11 | s CERAMIC 56PF 5% 50V | D11 | 8-719-800-76 | s DIODE 1SS226 |
| C43 | 1-163-021-91 | s CERAMIC 0.01uF 10% 50V | D12 | 8-719-400-18 | s DIODE MA152WK |
| C44 | 1-126-103-11 | s ELECT 470uF 20% 16V | D13 | 8-719-971-20 | s DIODE V19G |
| C45 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | D14 | 8-719-800-76 | s DIODE 1SS226 |
| C46 | 1-163-263-11 | s CERAMIC 330PF 5% 50V | D15 | 8-719-971-20 | s DIODE V19G |
| C47 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | D16 | 8-719-910-62 | s DIODE HZ6A-2L Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |
| C48 | 1-136-207-11 | s FILM 0.047uF 5% 630V | DL1 | 1-415-484-11 | s DELAY LINE 110ns |
| C49 | 1-136-207-11 | s FILM 0.047uF 5% 630V | IC1 | 8-759-633-27 | s IC M51392P |
| C50 | 1-137-354-11 | s FILM 0.1uF 5% 100V | IC2 | 8-759-982-21 | s IC TA78L005AP |
| C51 | 1-137-509-11 | s FILM 10uF 5% 100V | IC3 | 8-759-822-05 | s IC LA7213 |
| C52 | 1-137-509-11 | s FILM 10uF 5% 100V | IC4 | 8-759-200-90 | s IC TC4538BF |
| C54 | 1-137-509-11 | s FILM 10uF 5% 100V | IC5 | 8-759-300-28 | s IC HA11423MP |
| C55 | 1-124-570-11 | s ELECT 220uF 20% 16V | IC6 | 8-759-200-90 | s IC TC4538BF |
| C56 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | | | |
| C57 | 1-124-898-11 | s ELECT 4700uF 20% 16V | | | |
| C58 | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V | | | |
| C59 | 1-123-875-11 | s ELECT 10uF 20% 50V | | | |

Please see page D-8 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VF-48 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|--|
| IC7 | 8-759-140-85 s | IC UPC1093J Ser.No.10001 thru 10070(UC) Ser.No.30001 thru 30050(J) Ser.No.40001 thru 40130(EK) |
| | 8-759-142-20 s | IC UPC4053G Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |
| IC8 | 8-759-512-10 s | IC TDA1170N |
| IC9 | 8-759-300-71 s | IC MC14053BF |
| L1 | 1-410-322-11 s | 3.3uH |
| L2 | 1-408-408-00 s | INDUCTOR 8.2uH |
| L3 | | |
| L4 | 1-535-178-00 s | RES, FERRITE |
| L5 | 1-460-191-11 s | COIL, HORIZONTAL LINEARITY |
| L6 | | |
| L7 | | |
| Q1 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q2 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q3 | 8-729-117-83 s | TRANSISTOR 2SK160A-K25 |
| Q4 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q5 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q6 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q7 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q8 | 8-729-104-28 s | TRANSISTOR 2SC2780-NL |
| Q9 | 8-729-104-28 s | TRANSISTOR 2SC2780-NL |
| Q10 | 8-729-144-87 s | TRANSISTOR 2SA1173 |
| Q11 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q12 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q13 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q14 | 8-729-104-28 s | TRANSISTOR 2SC2780-NL |
| Q15 | 8-729-821-47 s | TRANSISTOR 2SC3392-AY7 |
| Q16 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q17 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q18 | 8-729-906-93 s | TRANSISTOR IRF640 |
| Q19 | 8-729-906-93 s | TRANSISTOR IRF640 |
| Q20 | 8-729-113-10 s | TRANSISTOR FA1F4M-L32 |
| Q21 | 8-729-906-93 s | TRANSISTOR IRF640 |
| Q22 | 8-729-113-10 s | TRANSISTOR FA1F4M-L32 |
| Q23 | 8-729-177-22 s | TRANSISTOR 2SB772-Q |
| Q24 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q25 | 8-729-113-10 s | TRANSISTOR FA1F4M-L32 |
| Q26 | 8-729-113-10 s | TRANSISTOR FA1F4M-L32 |
| Q27 | | |
| Q28 | 8-729-906-93 s | TRANSISTOR IRF640 |
| R1 | 1-249-390-11 s | CARBON 5.6 5% 1/4W Ser.No.10001 thru 10040 (UC) |
| R2 | 1-247-804-11 s | CARBON 75 5% 1/4W Ser.No.30001 thru 30030 (J) |
| R11 | 1-216-603-11 s | METAL, CHIP 10 1% 1/10W Ser.No.40001 thru 40080 (EK) |
| | 1-216-623-11 s | METAL, CHIP 68 1% 1/10W Ser.No.10041 AND HIGHER (UC) Ser.No.30031 AND HIGHER (J) Ser.No.40081 AND HIGHER (EK) |
| R35 | 1-249-393-11 s | CARBON 10 5% 1/4W |
| R36 | 1-215-896-00 s | METAL 4.7K 5% 2W |

(VF-48 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|------------------|---|
| R37 | 1-216-615-11 s | METAL, CHIP 33 0.5% 1/10W |
| R38 | 1-216-615-11 s | METAL, CHIP 33 0.5% 1/10W |
| R42 | 1-249-405-11 s | CARBON 100 5% 1/4W |
| R61 | 1-216-121-00 s | METAL, CHIP 1M 5% 1/10W |
| R62 | 1-216-121-00 s | METAL, CHIP 1M 5% 1/10W |
| R66 | 1-249-429-11 s | CARBON 10K 5% 1/4W |
| R69 | ▲ 1-216-655-11 s | METAL, CHIP 1.5K 5% 1/10W |
| R72 | 1-216-295-00 s | METAL, CHIP 0-OHM |
| R73 | 1-216-101-00 s | METAL, CHIP 150K 5% 1/10W |
| R76 | 1-249-437-11 s | CARBON 47K 5% 1/4W |
| R90 | 1-215-862-11 s | FILM, 68 5% 1W |
| R91 | 1-216-309-00 s | METAL 5.6 5% 1/10W |
| R99 | 1-216-298-00 s | METAL, CHIP 2.2 0.5% 1/10W |
| R101 | 1-216-295-00 s | METAL, CHIP 0-OHM |
| R102 | 1-216-099-00 s | METAL, CHIP 120K 5% 1/10W |
| R106 | 1-216-099-00 s | METAL, CHIP 120K 5% 1/10W |
| R109 | 1-216-121-00 s | METAL, CHIP 1M 5% 1/10W |
| R116 | 1-216-615-11 s | METAL, CHIP 33 0.5% 1/10W |
| R117 | 1-260-068-11 s | CARBON 2.2 5% 1/2W |
| R120 | 1-249-440-11 s | CARBON 82K 5% 1/4W |
| R124 | 1-249-429-11 s | CARBON 10K 5% 1/4W |
| R125 | 1-216-105-00 s | METAL, CHIP 220K 5% 1/10W |
| R126 | 1-249-405-11 s | CARBON 100 5% 1/4W |
| R127 | 1-249-437-11 s | CARBON 47K 5% 1/4W |
| R128 | 1-249-437-11 s | CARBON 47K 5% 1/4W |
| R129 | 1-216-298-00 s | METAL, CHIP 2.2 0.5% 1/10W |
| R131 | 1-249-417-11 s | CARBON 1K 5% 1/4W Ser.No.10001 thru 10070 (UC) Ser.No.30001 thru 30030 (J) Ser.No.40001 thru 40080 (EK) |
| | 1-216-651-11 s | METAL, CHIP 1K 1% 1/10W Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |
| R134 | 1-216-121-00 s | METAL, CHIP 1M 5% 1/10W Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |
| RV1 | 1-237-032-11 s | RES, ADJ, METAL 500 |
| RV2 | 1-237-035-11 s | RES, ADJ, METAL 5K |
| RV3 | 1-237-036-11 s | RES, ADJ, METAL 10K |
| RV4 | 1-237-040-11 s | RES, ADJ, METAL 200K |
| RV5 | 1-237-033-11 s | RES, ADJ, METAL 1K K |
| RV6 | 1-237-039-11 s | RES, ADJ, METAL 100K |
| RV7 | 1-237-039-11 s | RES, ADJ, METAL 100K |
| RV8 | 1-237-038-11 s | RES, ADJ, METAL 50K |
| RV9 | 1-237-038-11 s | RES, ADJ, METAL 50K |
| SG1 | 1-519-030-00 s | DISCHARGE ELEMENT |
| SG2 | 1-519-030-00 s | DISCHARGE ELEMENT |

Please see page D-8 for the part numbers of capacitors and resistors that are not listed in the parts list.

VF-49 BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|------------------|--|
| 1pc | A-7515-386-A o | OUNTED CIRCUIT BOARD, VF-49 |
| C201 | 1-124-523-11 s | ELECT 4700uF 20% 16V |
| C202 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C203 | 1-163-263-11 s | CERAMIC 330PF 5% 50V |
| C204 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C205 | △ 1-136-208-11 s | FILM 0.068uF 5% 630W |
| C206 | △ 1-136-208-11 s | FILM 0.068uF 5% 630W |
| C207 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C208 | 1-126-772-11 s | ELECT 1uF 20% 250V |
| C209 | 1-137-509-11 s | FILM 10uF 5% 100V |
| C210 | 1-137-509-11 s | FILM 10uF 5% 100V |
| C211 | 1-163-021-91 s | CERAMIC 0.01uF 10% 50V |
| C212 | 1-136-311-11 s | FILM 0.47uF 20% 125V |
| C213 | 1-128-498-11 s | ELECT 47uF 20% 100V |
| C214 | 1-126-364-51 s | ELECT 22uF 20% 100V |
| C215 | 1-137-242-11 s | FILM 0.022uF 10% 125V |
| C216 | 1-137-242-11 s | FILM 0.022uF 10% 125V |
| C217 | 1-137-242-11 s | FILM 0.022uF 10% 125V |
| C218 | 1-137-354-11 s | FILM 0.1uF 5% 100V |
| C219 | 1-123-875-11 s | ELECT 10uF 20% 50V |
| CN201 | 1-506-471-11 o | CONNECTOR, 6P, MALE |
| CN202 | 1-506-473-11 o | CONNECTOR, 8P, MALE |
| CN203 | 1-506-467-11 o | CONNECTOR, 2P, MALE |
| CN204 | 1-506-468-11 o | CONNECTOR, 3P, MALE |
| CN205 | 1-506-163-00 s | PLUG |
| CN206 | 1-506-163-00 s | PLUG |
| D201 | 8-719-911-19 s | DIODE 1SS119 |
| D202 | 8-719-901-83 s | DIODE 1SS83 |
| D203 | 8-719-933-34 s | DIODE HZS6A2L |
| D204 | 8-719-800-76 s | DIODE 1SS226 |
| D205 | 8-719-971-20 s | DIODE V19G |
| D206 | 8-719-971-20 s | DIODE V19G |
| D207 | 8-719-901-19 s | DIODE V11N |
| D208 | 8-719-901-83 s | DIODE 1SS83 |
| D209 | 8-719-901-83 s | DIODE 1SS83 |
| IC201 | 8-759-142-20 s | IC UPC4062G2 |
| L201 | 1-424-571-11 s | COIL, CHOKE 40UH |
| L202 | 1-535-178-00 s | RES, FERRITE |
| Q201 | 8-729-821-47 s | TRANSISTOR 2SC3392-AY7 |
| Q202 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q203 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q204 | 8-729-906-93 s | TRANSISTOR IRF640 |
| Q205 | 8-729-906-93 s | TRANSISTOR IRF640 |
| Q206 | 8-729-177-22 s | TRANSISTOR 2SB772-Q |
| Q207 | 8-729-100-66 s | TRANSISTOR 2SC1623 |
| Q208 | 8-729-216-22 s | TRANSISTOR 2SA1162 |
| Q209 | 8-729-906-93 s | TRANSISTOR IRF640 |
| R208 | △ 1-216-695-11 s | METAL, CHIP 68K 0.5% 1/10W Ser.No.10001 thru 10070(UC) Ser.No.30001 thru 30050(J) Ser.No.40001 thru 40130(EK) |
| | 1-215-825-11 s | METAL FILM 68K 1% 1/8W Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |

(VF-49 BOARD)

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|------------------|--|
| R209 | △ 1-216-681-11 s | METAL, CHIP 18K 0.5% 1/10W Ser.No.10001 thru 10070(UC) Ser.No.30001 thru 30050(J) Ser.No.40001 thru 40130(EK) |
| | 1-214-587-00 s | METAL FILM 18K 1% 1/8W Ser.No.10071 AND HIGHER(UC) Ser.No.30051 AND HIGHER(J) Ser.No.40131 AND HIGHER(EK) |

| | | |
|------|----------------|-------------------------|
| R215 | 1-216-121-00 s | METAL, CHIP 1M 5% 1/10W |
| R219 | 1-216-295-00 s | METAL, CHIP 0-OHM |
| R221 | 1-202-723-00 s | COMP 2.2M 10% 1/2W |
| R222 | 1-247-729-11 s | CARBON 15 5% 1/2W |
| R223 | 1-249-441-11 s | CARBON 100K 5% 1/4W |

| | | |
|------|----------------|--------------------|
| R224 | 1-249-393-11 s | CARBON 10 5% 1/4W |
| R225 | 1-202-549-00 s | COMP 100 10% 1/2W |
| R226 | 1-260-087-11 s | CARBON 100 5% 1/2W |
| R227 | 1-214-934-55 s | FILM 750K 1% 1/2W |
| R228 | 1-260-119-11 s | CARBON 47K 5% 1/2W |
| R229 | 1-214-934-55 s | FILM 750K 1% 1/2W |
| R230 | * See NOTE 1 | |
| R231 | 1-260-119-11 s | CARBON 47K 5% 1/2W |
| R232 | 1-260-119-11 s | CARBON 47K 5% 1/2W |
| R233 | 1-249-433-11 s | CARBON 22K 5% 1/4W |
| R236 | 1-216-295-00 s | METAL, CHIP 0-OHM |
| R240 | * See NOTE 1 | |

| | | |
|-------|------------------|---------------------------|
| RV201 | 1-237-040-11 s | RES, ADJ, METAL 200K |
| RV202 | 1-237-042-11 s | RES, ADJ, METAL 1M |
| SG201 | 1-519-030-00 s | DISCHARGE ELEMENT |
| SG202 | 1-519-030-00 s | DISCHARGE ELEMENT |
| T201 | △ 1-439-522-11 s | TRANSFORMER ASSY, FLYBACK |

*NOTE 1

VF-49基板のR230とR240は、ペアで交換することになっています。
いずれか一方を交換する場合は、他方も同時に交換します。
下記の部品をオーダーして下さい。

Resistors R230 and R240 on the VF-49 board should be replaced in pairs. When replacing either R230 or R240, replace the other at the same time.
Please order the following parts.

1-202-883-11 s RES, COMP, 680K 10% 1/2W
1-202-884-11 s RES, COMP, 820K 10% 1/2W

VR-179A BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|---------------------------------|
| 1pc | 1-648-737-11 o | PRINTED CIRCUIT BOARD, VR-179A |
| C401 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C402 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C403 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| RV401 | 1-238-293-11 s | RES, VER, CARBON 10K "CONTRAST" |

Please see page D-8 for the part numbers of capacitors and resistors that are not listed in the parts list.

VR-179B BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|--------------------------------|
| 1pc | 1-648-737-11 o | PRINTED CIRCUIT BOARD, VR-179B |
| C404 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C405 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C406 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| RV402 | 1-238-293-11 s | RES, VER, CARBON 10K "PEAKING" |

VR-179C BOARD

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|----------------|--------------------------------|
| 1pc | 1-648-737-11 o | PRINTED CIRCUIT BOARD, VR-179C |
| C407 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C408 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| C409 | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V |
| RV403 | 1-238-293-11 s | RES, VER, CARBON 10K "BRIGHT" |

FRAME

| Ref. No. or Q'ty | Part No. | SP Description |
|---------------------|-------------------|--|
| 1pc | 1-466-615-11 s | CONVERTER UNIT, DC-DC |
| CN101F | (to VF-48 BOARD) | 1-569-195-11 o HOUSING, 2P |
| CN102F | (to VF-48 BOARD) | 1-569-197-11 o HOUSING, 4P |
| CN103F | (to VF-48 BOARD) | 1-560-548-00 o CONTACT, V CONNECTOR 1-561-668-00 o HOUSING, V CONNECTOR 4P |
| CN104F | (to VF-48 BOARD) | 1-569-201-11 o HOUSING, 8P |
| CN105F | (to VF-48 BOARD) | 1-569-198-11 o HOUSING, 5P |
| CN106 | (to VF-48 BOARD) | 1-535-047-00 s FASTEN RECEPTACLE AMP |
| CN107F | (to VF-48 BOARD) | 1-569-204-11 o HOUSING, 11P |
| CN201F | (to VF-49 BOARD) | 1-569-199-11 o HOUSING, 6P |
| CN202F | (to VF-49 BOARD) | 1-569-201-11 o HOUSING, 8P |
| CN203F | (to VF-49 BOARD) | 1-569-195-11 o HOUSING, 2P |
| CN204F | (to VF-49 BOARD) | 1-569-196-11 o HOUSING, 3P |
| CN205 | (to VF-49 BOARD) | 1-535-047-00 s FASTEN RECEPTACLE AMP |
| CN206 | (to VF-49 BOARD) | 1-535-047-00 s FASTEN RECEPTACLE AMP |
| CN301F | (to PS-269 BOARD) | 1-569-201-11 o HOUSING, 8P |
| CN302F | (to PS-269 BOARD) | 1-569-195-11 o HOUSING, 2P |
| CN303F | (to PS-269 BOARD) | 1-569-199-11 o HOUSING, 6P |
| CN304F | (to PS-269 BOARD) | 1-569-203-11 o HOUSING, 10P |
| CN401 | 1-949-150-11 s | HARNESS (25P) 1-560-904-11 s CONNECTOR, MULTI 25P, MALE 1-564-775-11 s CONTACT, PLUG |
| DY401 | ▲ 1-451-397-11 s | DEFLECTION YOKE |
| PL401 | 1-518-411-00 s | LAMP "UP TALLY" 1-517-075-00 s SOCKET, LAMP |
| PL402 | 1-518-411-00 s | LAMP "UP TALLY" 1-517-075-00 s SOCKET, LAMP |
| S401 | 1-571-070-11 s | SWITCH, TOGGLE "POWER" |
| S402 | 1-554-355-00 s | SWITCH, TOGGLE "PEAKING" |
| S403 | 1-571-070-11 s | SWITCH, TOGGLE "SCAN SELECT" |
| RV401 | 1-238-506-11 s | RES, VAR, METAL 5K "CENT" |
| RV402 | 1-238-506-11 s | RES, VAR, METAL 5K "PEAKING" |
| RV403 | 1-241-624-11 s | RES, VAR, METAL 50K "BRIGHT" |
| V401 | ▲ 1-546-090-11 s | CRT |

Please see page D-8 for the part numbers of capacitors and resistors that are not listed in the parts list.

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No.
or Q'ty Part No. SP Description

| | | |
|------|--------------|-------------------------------|
| 1pc | X-3166-281-1 | o HOOD ASSY, INDOOR |
| 1pc | 1-576-133-11 | s FUSE, GLASS TUBE 3.15A 250V |
| 1pc | 4-027-937-01 | s PLATE, NUMBER |
| 2pcs | 7-627-556-38 | s SCREW +P 2.6X4.0 |

Please see page D-8 for the part numbers of capacitors
and resistors that are not listed in the parts list.

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